

Census of Antarctic Marine Life

SYNOPSIS OF THE AMPHIPODA
OF THE SOUTHERN OCEAN

Edited by Claude DE BROYER

Volume 2:
Acanthonotozomellidae, Amathillopsidae,
Dikwidae, Epimeriidae, Iphimediidae,
Ochlesidae and Vicmusiidae

by
Charles Oliver COLEMAN

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Synopsis of the Amphipoda of the Southern Ocean

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CONTENTS

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Acanthonotozomellidae, Amathillopsidae, Dikwidae, Epimeriidae, Iphimediidae, Ochlesidae and
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Abstract - Résumé	4	Genus <i>Echiniphimedia</i> K.H. Barnard, 1930	75
Preface by Sandro Ruffo	5	Genus <i>Gnathiphimedia</i> K.H. Barnard, 1930	83
Foreword to the <i>Synopsis of the Amphipoda of the Southern Ocean</i>	6	Genus <i>Iphimedia</i> Rathke, 1843	92
Introduction	9	Genus <i>Iphimediella</i> Chevreux, 1911c	97
Material and Methods	9	Genus <i>Labriphimedia</i> K.H. Barnard, 1931a	109
General morphology	9	Genus <i>Maxilliphimedia</i> K.H. Barnard, 1930	112
Acknowledgements	11	Genus <i>Nodotergum</i> Bellan-Santini, 1972a	113
Systematics	12	Genus <i>Paranchiphimedia</i> Ruffo, 1949	114
Family ACANTHONOTOZOMELLIDAE Coleman & Barnard, 1991b	12	Genus <i>Parapanoploea</i> Nicholls, 1938	116
Genus <i>Acanthonotozomella</i> Schellenberg, 1926a	13	Genus <i>Pariphimedia</i> Chevreux, 1906a	119
Genus <i>Acanthonotozomoides</i> Schellenberg, 1931a	18	Genus <i>Pseudiphimediella</i> Schellenberg, 1931a	122
Family AMATHILLOPSIDAE Pirlot, 1934	20	Genus <i>Stegopanoploea</i> Karaman, 1980b	124
Genus <i>Amathillopsis</i> Heller, 1875	20	Family OCHLESIDAE Stebbing, 1910	126
Genus <i>Parepimeria</i> Chevreux, 1912	22	Genus <i>Antarctodius</i> Berge, Vader & Coleman, 1999	126
Family DIKWIDAE Coleman & J.L. Barnard, 1991	27	Genus <i>Curidia</i> Thomas, 1983	129
Genus <i>Dikwa</i> Griffiths, 1974	27	Family VICMUSIIDAE Just, 1990	130
Family EPIMERIIDAE Boeck, 1871	28	Genus <i>Acanthonotozomopsis</i> Watling & Holman, 1980	130
Genus <i>Actinacanthus</i> Stebbing, 1888	30	References	132
Genus <i>Epimeria</i> Costa, 1851	31	Taxonomic index	133
Genus <i>Epimeriella</i> Walker, 1906b	56	Colour plates	134
Genus <i>Metepimeria</i> Schellenberg, 1931a	61		
Genus <i>Uschakoviella</i> Gurjanova, 1955b	62		
Family IPHIMEDIIDAE Boeck, 1871	64		
Genus <i>Anchiphimedia</i> K.H. Barnard, 1930	74		

ABSTRACT

The aim of the "*Synopsis of the Amphipoda of the Southern Ocean*" is to provide users of taxonomy, such as ecologists, with a quick and easy guide to the identification of amphipods from the Antarctic and the Subantarctic regions. In this second volume of the series seven families are treated: Acanthonotozomellidae, Amathillopsidae (including Parepimeriinae), Dikwidae, Epimeriidae, Iphimediidae, Ochlesidae and Vicmusiidae; a total of 87 species. Diagnoses and keys for all genera and species are provided. The main characters in the keys are illustrated, and for each species a habitus drawing is provided. Identification of most species is possible without dissection. Distribution maps for all species are included.

RÉSUMÉ

Le but du "*Synopsis of the Amphipoda of the Southern Ocean*" est de fournir aux usagers de la taxonomie, en premier lieu aux écologistes, un guide d'identification rapide et d'utilisation aisée pour les espèces antarctiques et subantarctiques. Dans ce second volume de la série sept familles sont traitées: Acanthonotozomellidae, Amathillopsidae (comprenant les Parepimeriinae), Dikwidae, Epimeriidae, Iphimediidae, Ochlesidae et Vicmusiidae, soit un total de 87 espèces. Des diagnoses et des clés sont fournies pour tous les genres et espèces. Les caractères principaux sont illustrés dans les clés et l'habitus de chaque espèce est figuré. L'identification de la plupart des espèces est possible sans dissection. Les cartes de distribution sont fournies pour chaque espèce.

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CONTENTS

Abstract - Résumé	4	Family IPHIMEDIIDAE Boeck, 1871	64
Preface by Sandro Ruffo	5	Genus <i>Anchiphimedia</i> K.H. Barnard, 1930	74
Foreword to the <i>Synopsis of the Amphipoda of the Southern Ocean</i>	6	Genus <i>Echiniphimedia</i> K.H. Barnard, 1930	75
Introduction	9	Genus <i>Gnathiphimedia</i> K.H. Barnard, 1930	83
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Genus <i>Epimeriella</i> Walker, 1906b	56	References	132
Genus <i>Metepimeria</i> Schellenberg, 1931a	61	Taxonomic index	133
Genus <i>Uschakoviella</i> Gurjanova, 1955b	62	Colour plates	134



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Preface

During my long life as an amphipodologist I had the chance, in 1982, to ask Théodore Monod to write the preface to the first volume of "The Amphipoda of the Mediterranean". That work in a certain sense inspired the "Synopsis for the Amphipoda of the Southern Ocean" for which I am now asked to write the preface. I accept the commitment and I consider it a privilege to present a work so long awaited, since until today everybody who needed to identify Antarctic amphipods had to resort to several hundreds of specialist works in a variety of publications or in the series of reports of geographical expeditions that have punctuated the history of Antarctic researches, ever since over a century ago.

Today the amphipods of Antarctic and sub-Antarctic fauna, except the Hyperiid, totalized 815 species, a number that places these Crustaceans among the animals with the highest biodiversity for the Southern Ocean fauna. The knowledge of biodiversity at the specific level, which also allows to consider its variations due to environmental changes and thus to monitor anthropic pressure in time, has as its indispensable basis the identification of living species. This is the duty of taxonomy, which until a few years ago was considered an obsolete discipline of biology, but must be revalued and expanded, in close connection to ecology and molecular biology. The work which I am happy to present has this purpose and it is no chance that it was born in a great museum as the Institut Royal des Sciences Naturelles de Belgique. Today a work of this kind must be realised by a team, and this has already been the case for the preparation of "The Amphipods of the Mediterranean". However, an editor was needed who believed in the feat and helped the plan be born and develop, in cooperation with the 16 amphipodologists of 11 countries, chosen for its realisation. This person is my friend Claude De Broyer who, with organizational capability and great tenacity, completed the first stage of a journey which I hope will not be too long. To Claude De Broyer and all the authors are due the thanks of all of us amphipodologists.

The first volume begins with a novelty for a taxonomic work since it contains the "Catalogue of the Gammaridean and Corophiidean Amphipoda of the Southern Ocean". This is uncommon for a work that is destined to the identification of species but, I believe, is very practical because the Catalogue, over 300-pages-long, includes the citation of all the authors who have considered every species, the detailed geographic distribution, the depth range, the type-locality (with the geographic coordinates, if known) and the type specimen location. All the above allow to significantly lighten the part that is destined to the identification of taxa, to the great advantage of the users, through illustrated keys of genera and species, as electronic interactive keys up to the rank of subfamily are planned.

Amphipod systematics is conveniently represented along an alphabetical order because, due to the nearly absolute absence of paleontological proof, little or nothing can be said about an arrangement that can reflect its evolution. However, the results of the cladistic analysis are considered, which cancelled the suborder Caprellidea, instituted the suborder Corophiidean (Myers & Lowry, 2003) and considers the superfamily Talitroidea (Serejo, 2004). The question mark still remains on the superfamily Hadzioidea that hopefully can soon be reconsidered and clearly reordered. From a zoogeographic viewpoint, the total absence of the Gammaridae, which are so characteristic of the boreal hemisphere, catches the eye.

This work comes out in 2007, exactly 300 years since the birth of Carl Linnaeus. It can therefore be considered a significant tribute to the great naturalist whose system still today allows to use a conventional means, accepted unanimously, for naming living beings, through an historical and immutable language, and for ordering their units based on the progress of research. This work represents the state of the art of the knowledge on Antarctic marine amphipods, so it allows to increase with greater certainty all what we know today about a group of animals of great environmental importance.

Best wishes to the future scholars who now have the luck to have such an instrument at their disposal!

Sandro Ruffo

Foreword to the *Synopsis of the Amphipoda of the Southern Ocean*

Amphipod crustaceans are one of the most speciose animal groups in the Antarctic and sub-Antarctic waters, where they show a high diversity in terms of life styles, trophic types, habitats and size spectra. They constitute a significant trophic resource for a number of Southern Ocean fishes, invertebrates, seabirds and mammals.

Nowadays, in the "Global Change" context, polar regions experience greater rates of climate change than elsewhere in the world. Their biota is highly adapted to their extreme environment and appears vulnerable to shifts in climate. Because of the key-role of the Southern Ocean in the Earth system and the growing impact of global environmental change, it is crucial to establish comprehensive baseline information on the Antarctic marine biodiversity as a sound benchmark against which future change can reliably be assessed.

Accurate species identification is fundamental in biodiversity studies and relies on efficient identification tools, which are still lacking for some highly diverse and taxonomically difficult groups of the Southern Ocean, such as amphipods or polychaetes.

Southern Ocean amphipods have been described from the beginning of Antarctic exploration in the second half of the nineteenth century, marked by the works of Pfeffer (1888) and Stebbing (1888). At the turn of the twentieth century Antarctic exploration intensified, resulting in important taxonomic contributions mostly by Walker (1903a, 1907) and Chevreux (1906e, 1913c). The third period, between 1925 and 1938 was the most productive in the history of Antarctic amphipod taxonomy and nearly half of the present fauna was described mostly by Schellenberg (1926a, 1931a) and K.H. Barnard (1930, 1932). The increased activity in the Antarctic following the International Geophysical Year (1957-58), the establishment of permanent coastal stations and the development of many national Antarctic programmes under the coordination of SCAR resulted in a number of contributions by contemporary specialists, which substantially augmented the number of known Antarctic taxa.

However, the current knowledge of the Antarctic benthic biodiversity in general remains highly patchy in terms of coverage of geographical areas, bathymetric zones, habitats, taxonomic groups, ecofunctional groups, or size spectra. Vast areas of the High Antarctic continental shelf are still untouched and the Antarctic deep sea is hardly explored. It has been estimated that only one third of the Antarctic shelf macrobenthos species is already known (Gutt *et al.* 2003). Concerning the amphipods, new species are discovered by each exploratory cruise on the shelves around the continent or around the islands of the Scotia Arc and the first systematic investigations of the Antarctic abyssal basins by the *Polarstern* ANDEEP cruises have recently collected an impressive number of unknown taxa.

In the framework of the "Ant'Phipoda" project (De Broyer *et al.* 2001b), an international network of specialists (the «Antarctic Amphipodologist Network») was established to undertake the taxonomic revision of the Antarctic fauna of gammaridean and corophiidean amphipods (about 600 spp presently recognized), to synthesize their biogeographical and ecological traits and to elaborate the highly-needed identification guides and electronic identification keys.

The initial impetus for developing this Synopsis project came from Wolfgang Wägele (Bonn), editor of the very welcome - but now provisionally suspended - series "Synopsis of the Antarctic Benthos", who encouraged me to edit the amphipod volumes. Having in mind the nice example of the successful "Amphipoda of the Mediterranean" volumes edited by Sandro Ruffo, a number of specialists (forming the "Antarctic Amphipodologist Network") have accepted with enthusiasm to participate in the project and to contribute particular families to cover the whole Antarctic benthic fauna. I would like to thank G. Alonso de Pina (Buenos Aires), H.G. Andres (Hamburg), D. Bellan-Santini (Marseille), J. Berge (Longyearbyen), C.O. Coleman (Berlin), K. Conlan (Ottawa), C. d'Udekem d'Acoz (Bruxelles), J.M. Guerra-Garcia (Sevilla), E. Hendrycks (Ottawa), K. Jażdżewski (Lodz), T. Krapp-Schickel (Bonn), J.K. Lowry (Sydney), A. Myers (Cork), M. Rauschert (Berlin), I. Takeuchi (Matsuyama) and M.H. Thurston (Southampton) for their involvement in the project.

The Synopsis will cover all benthic amphipod taxa living in the Southern Ocean south to the Polar Front (formerly Antarctic Convergence), and, as far as possible, sub-Antarctic species living around the Subantarctic Islands and in the Magellan region of southern South America will also be taken into account.

The volumes will deal with the different family contributions as they appear ready to press. It was found preferable not to wait for the completion of the revision of the whole fauna by the various contributors. We hope that the

users of this Synopsis will understand the advantages of this presentation rather than its disadvantages. We hope to present in a second step electronic interactive keys for genera and species.

The Synopsis is designed to facilitate the identification process to non-specialists: all keys are illustrated, diagnostic characters in keys are chosen to minimize as far as possible the need for dissection.

We hope that this Synopsis will - step by step - constitute a significant contribution to the Census of Antarctic Marine Life (www.caml.aq) and the SCAR-Marine Biodiversity Information Network (www.scarmarbin.be) in the framework of the International Polar Year 2007-2008.

I wish to thank, also on behalf of the "Antarctic Amphipodologist Network":

- The Belgian Federal Science Policy for its support to the preparation of the Synopsis, through the BIANZO project (Biodiversity of the Antarctic Zoobenthos),
- The Royal Belgian Institute of Natural Sciences, and in particular Mrs C. Pisani, General Director, Dr J. Van Goethem, Head of Invertebrate Department, and Prof. K. Wouters, Editor of the Bulletin, for the publication as supplements of the "Bulletin de l'Institut Royal des Sciences Naturelles de Belgique",
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Claude De Broyer

Editor

Institut royal des Sciences naturelles de Belgique,
Brussels, May 2007

Synopsis of the Amphipoda of the Southern Ocean

Acanthonotozomellidae, Amathillopsidae, Dikwidae, Epimeriidae, Iphimediidae, Ochlesidae and Vicmusiidae

Introduction

This is the second volume of a series of monographs on benthic amphipods of the Antarctic Ocean. The families treated herein are not a monophyletic entity. These families have in common a remarkable body shape caused by dorsal and lateral teeth and carinae. Many of these species are very colourful and it is unknown what role the strange body shapes and the colours play. In case these spiny processes are adaptive there may be two explanations: a) It could be that these spiny amphipods are less often eaten by predators such as fish as the spines prick in their mouth and digestive tract or b) the alternative could be that the strange body shapes act as a camouflage. This could be observed in *Echiniphimedia hodgsoni*, a micropredator on sponges (Coleman, 1989a), which is almost invisible on the host (see Colour plate 3f). The colour and the hedgehog like appearance of this species matches the sponge surface in all details (Coleman, unpublished) and they are easily overlooked. Apart from the body armature the mouthpart morphology in some of these families is remarkable. Especially in the Iphimediidae the mouthpart morphology is so diverse as in no other amphipod taxon. Watling and Thurson, (1989) believe that the evolution of the Iphimediidae has been driven by the mouthpart morphology. At least in some species the mouthpart morphology is clearly related to the food preference. *Gnathiphimedia mandibularis* for example has stout noncutting incisors on the mandibles. With these hammer-like mouthparts they crush bryozoans and ingest whole zooids (Coleman, 1989b). The food preference of species with calcified remains in the gut as in *Gnathiphimedia* and *Echiniphimedia* can be easily determined, but there are other species which feed on soft tissue where food preference can only be found out by way of exception: *Maxilliphimedia longipes* has large, soft food morsels in the stomach and gut that are macroscopically not identifiable. Microscopically, however, nematocysts of cnidarians can be identified and the mandibles, especially the mandibles are capable of cutting such kind of soft, mucuous cnidarian tissue (Coleman, 1989a). In *Anchiphimedia dorsalis* the maxilliped outer plates surround the mouthparts and are tapering into a short tube. With this tube this species might ingest small detrital food (Coleman, 1991). Also in the Epimeriidae there seem to be food specialists. *Epimeria oxycarinata* has been found sitting on hydrozoans and hydrozoan remains were found in the digestive canal (Coleman, 1990).

Thus for ecologists these Antarctic amphipods seem to be an interesting group. For most of the species even the fundamental data are still missing. They have many practical advantages. They are easy to find, they are in almost every catch that comes aboard. They are large noticeable animals

and, different from most amphipod groups, they are relatively easy to identify. In most cases they can be determined without any dissection by the habitus.

I hope that this publication will help and encourage the non taxonomists to work with these amphipods.

Material and Methods

The species treated herein are distributed within the Antarctic Convergence, but nevertheless some areas outside this biogeographic boundary are included: the Falkland Islands, the Magellan region and Heard Island.

Together with the illustrated keys and illustrations, short diagnoses are given. Synonyms and detailed distribution records are not included, they are treated elsewhere (De Broyer *et al.*, 2007 Volume 1).

The illustrations are based on type material and material from the collections of the Museum für Naturkunde Berlin, most of which were collected during various expeditions of RV „Polarstern“. For several species illustrations from publications were redrawn, when no material was available or the material was in a bad state. Photos on the colour plates were made by Martin Rauschert, Claude De Broyer, Gauthier Chapelle and myself in aquaria in a temperature controlled laboratory on board the RV „Polarstern“.

The material was collected with benthic trawls, mostly Agassiz trawl or fishery bottom trawls. Part of the material was fixed in 4% formalin, later washed in freshwater and then stored in 70% ethanol. Some samples were directly fixed in 70% ethanol after carefully washing the specimens in freshwater to avoid white precipitate from the reaction of seawater with the ethanol. The ethanol should not be concentrated higher than 70% as the cuticle becomes brittle in high alcohol concentrations. It may be advantageous to add 1-5 % glycerol to the samples to keep the cuticle flexible for a long period of time.

General morphology

Most amphipods are laterally compress and have rather large side plates that are derived from expanded coxal articles of the main appendages (pereopods). The body is divided in (see Fig. 1a): a) head; 7 pereon segments (pereonites); c) 3 pleon segments (pleonites with their ventral epimeral plates); d) 3 urosome segment (urosomites); e) telson. The dorsal plates of the amphipods (tergites) can be armed with pointed processes, carinae (narrow, keel-like teeth) and dorsal continuous keels. Also the coxae may be acutely produced laterally. An important taxonomic character are the shapes of the posteroventral angles of the pleonites.

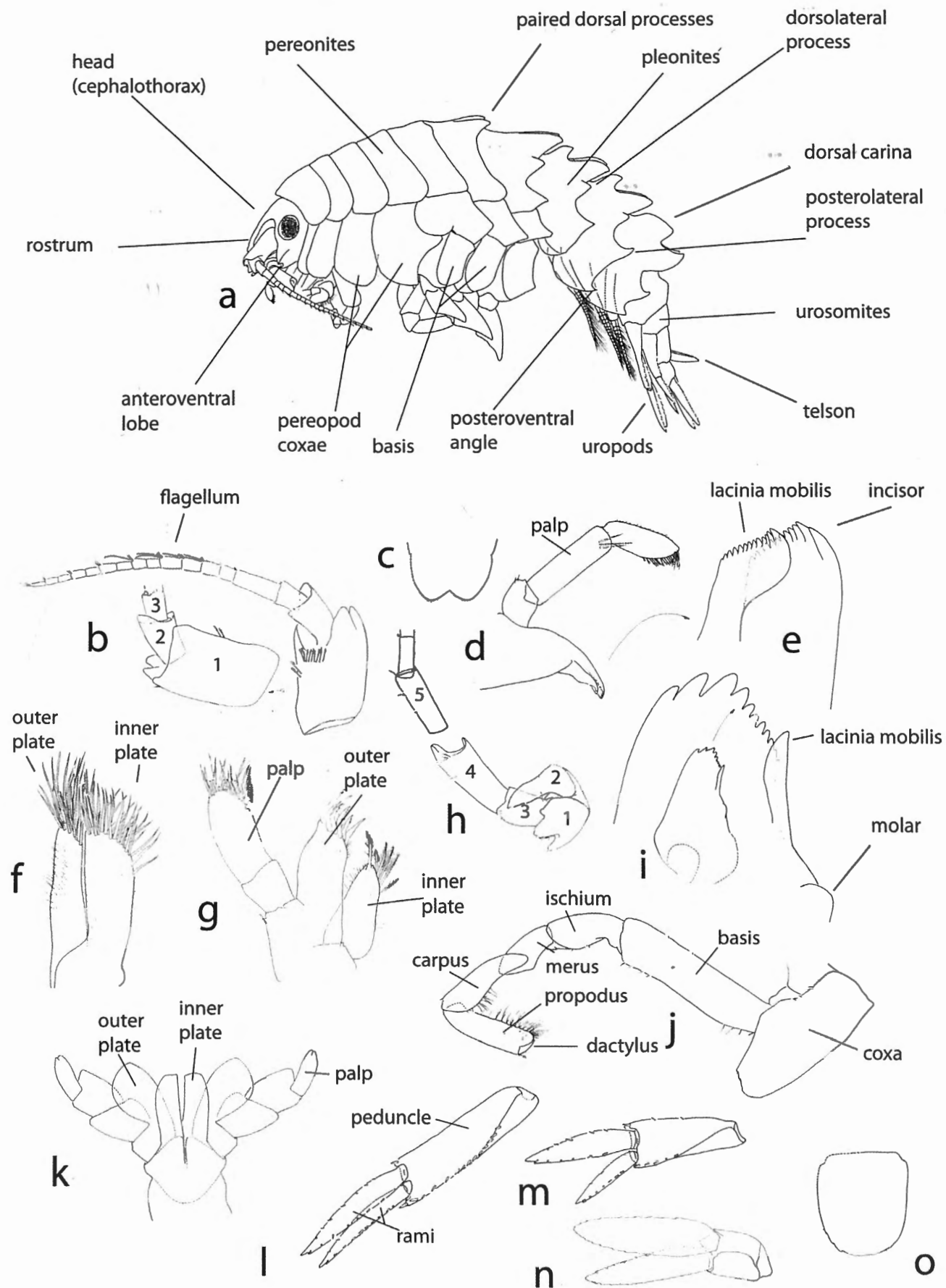


Fig. 1 a-n. Morphological structures of an amphipod crustacean. a) left aspect of body; b) antenna 1 with peduncular articles 1-3; c) upper lip (upper lip); d) mandibular body with palp; e) medial view of distal part of left mandible; f) maxilla 2; g) maxilla 1; h) antenna 2 peduncular articles 1-5; i) right mandible with lacinia mobilis and rudimentary molar; j) maxilliped, setation omitted; k) uropod 1; l) uropod 2; m) uropod 3; n) telson.

The head is in fact a cephalothorax as it comprises the head articles and additionally the first thoracopod as a maxilliped. On the head there are 2 pairs of antennae. Antenna 1 (Fig. 1b) consists of a peduncle of 3 articles and a flagellum. In many cases there is an accessory flagellum at the basis of the flagellum, that sometimes is reduced to a small, inconspicuous scale. Antenna 2 (Fig. 1h) has a 5-articulate peduncle, articles 1 and 2 are very small and sometimes partly fused. The distal margin of article 2 is drawn out into the pointed gland cone, the exit of the nephridial organ. The mouthparts are on the ventral side of the head. The anterior part is the epistome with a small plate, the upper lip or labrum (Fig. 1c). The following mouthparts are the mandibles (Fig. 1d, e, i), which act as jaws. They have a distal cutting edge (incisor), an accessory cutting blade (lacinia mobilis), and a grinding process (molar). Between lacinia mobilis and molar in most amphipod taxa there is a setal row. The mandible in most amphipods has a 3-articulate palp which is directed towards the basal articles of the antenna 2. The mandibles are followed by the lower lip (hypopharynx or labium), which is bilobed due to a median gap. Upper lip, mandibles and lower lip surround the mouth-opening. Posteriorly to this complex there are 3 more pairs of mouthparts: maxilla 1 and 2 and the fused maxilliped. Maxilla 1 (Fig. 1g) consists of an inner plate that is bordered with plumose setae, an outer plate with apical spine-like setae and a normally 2-articulate palp. Maxilla 2 (Fig. 1f) has an inner and an outer plate, bordered with setae distally and at the inner plate also medially. The maxilliped (normally in singular in amphipod literature) is fused at the proximal article and partly at the second one. There are a pair of inner and outer plates and a normally 4-articulated palp on both sides (Fig. 1k). The pereopods form 3 groups: pereopods 1-2 are called gnathopods due to their grasping capabilities involved in feeding in many species; pereopod 3-4 are in normal position in contrast to pereopods 5-7 which are strangely turned, so that the dactyli are directed anteriorly. The sequence of articles of the pereopods (Fig. 1j) follow the standard crustacean terminology (proximal to distal): coxa, basis, ischium, merus, carpus, propodus, dactylus. Gills and in females additionally oostegites (forming a brood pouch) occur as medial outgrowths of the coxae of some pereopods. The pereopods are followed by 3 pairs of pleopods that are coupled together by coupling hooks on the medial side of the proximal article. The 2 rami of each pleopod are bordered with long setulated setae that are used for swimming and ventilating the gills or eggs in the brood chamber. On the urosome there are 3 pairs of appendages that are traditionally called uropods (Fig. 1l, m, n) (in fact only the 3rd pair are uropods, uropods 1-2 are transformed pleopods). They consist of an uniarticulate peduncle and 2 rami. At the posterior end of the animal is the telson (Fig. 1o), which can be cleft or notched medially. In certain taxa reductions or transformations of these general structures may occur.

Acknowledgements

I would like to thank Prof. Dr. Wägele for his support over all these years and the crew of RV "Polarstern" for their help to collect the amphipods on several cruises. Thanks also to Dr. Martin Rauschert, Dr. Claude De Broyer and Dr. Gauthier Chapelle for providing their wonderful colour pictures. I am very grateful to Dr. Claude De Broyer for carefully editing and improving the manuscript. Special thanks to Ms Kati Wünsche for scanning the illustrations and making the distribution maps.

This is contribution n°4 to the Census of Antarctic Marine Life (CAML).

Systematics

ACANTHONOTOZOMELLIDAE Coleman & Barnard, 1991b

Diagnosis. Body compressed, with dorsal teeth. Rostrum well developed. Antennae elongate or short, flagella usually with 5+ articles; accessory flagellum absent. Mouthpart field conically produced. Epistome and upper lip narrow, long, incised. Incisor of mandible normal, toothed; setal row strong; molar reduced or absent; palp always present, 3-articulate. Lower lip without inner lobes, without distinct inner notches. Inner plate of maxilla 1 ordinary, medially setose or setation reduced; outer plate oblique, normally spinose; palp large, 2-articulate. Inner plate of maxilla 2 without facial or medial setae. Palp of maxilliped 4-articulate, article 2 often produced medially. Coxae 2-4 more or less

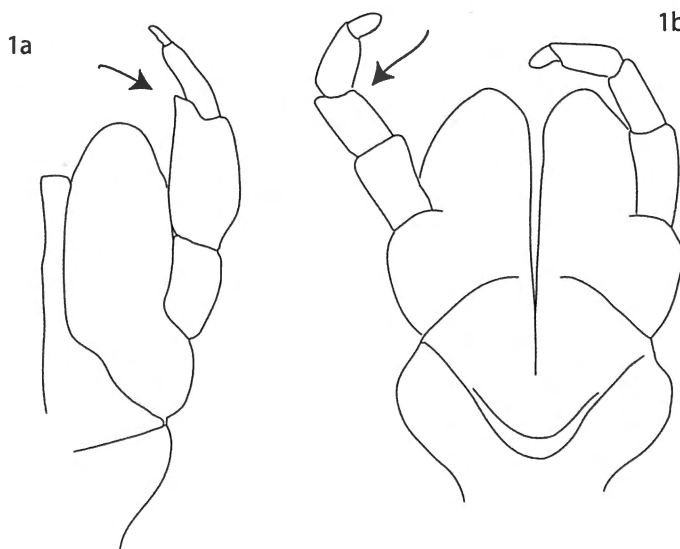
acuminate, ventral margins fitting normal ventral parabolic curve of anterior coxae or coxa 2 shortened; coxae 1 and 4 not shortened, coxa 1 widened in 2 genera but not significantly wider than coxa 2 (vs. Stilipedidae), subtruncate or rounded (except *Acanthonotozomoides* with concave posterior margin and ventral tooth), coxa 4 with large posteroventral process (small in *Amatiguakius*). Coxa 5 shorter than posteroventral process of coxa 4. Gnathopods feeble, subequal; gnathopods 1-2 simple or weakly parachelate, merus and carpus not produced, carpus slender. Bases 5-7 often with posterior cusps or teeth. Epimeral plate 3 often with 2 large cusps posteromarginally. Urosomites free. Uropods 1-3 biramous. Rami of uropod 3 longer than peduncle, flattened, lanceolate, 1-articulate. Telson entire or weakly incised.

List of genera. *Acanthonotozomella* Schellenberg, 1926a (= *Paracanthonotozoma* Bellan-Santini, 1972a); *Acanthonotozomoides* Schellenberg, 1931a; *Amatiguakius* Coleman & Barnard, 1991d.

Key to the genera to Acanthonotozomellidae

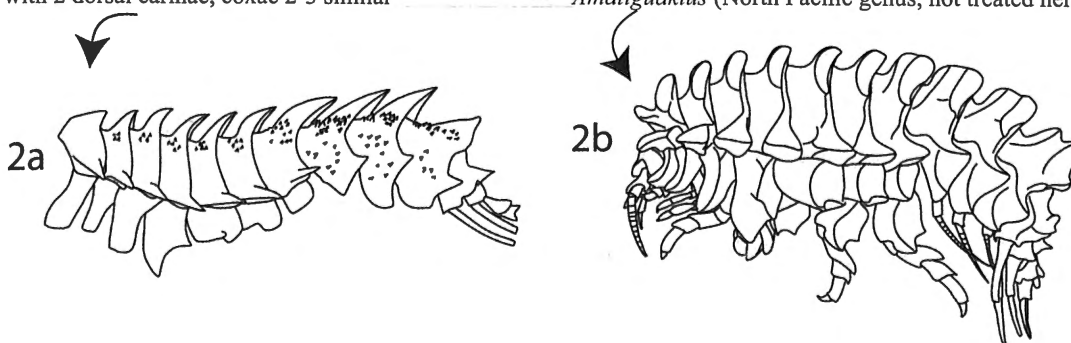
- 1a. Article 2 of maxilliped palp medially produced.
1b. Article 2 of maxilliped palp not produced

Acanthonotozomoides
2



- 2a. Pereonite 1 with 1 dorsal dorsal carina
2b. Pereonite 1 with 2 dorsal carinae, coxae 2-3 similar

Acanthonotozomella
Amatiguakius (North Pacific genus, not treated herein)



Acanthonotozomella Schellenberg, 1926a

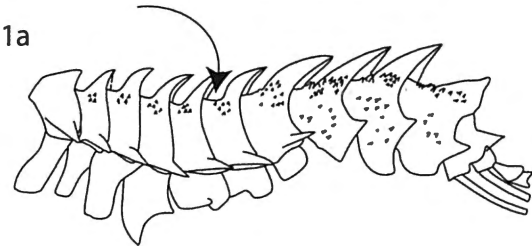
Type-species. *Acanthonotozomella alata* Schellenberg, 1926a

Diagnosis (after Barnard & Karaman, 1991). Body covered with teeth. Antenna 1 peduncular article shorter than 1. Mouthparts projecting conically. Upper lip incised, not very broad. Mandibular incisor normal, toothed; setal row long;

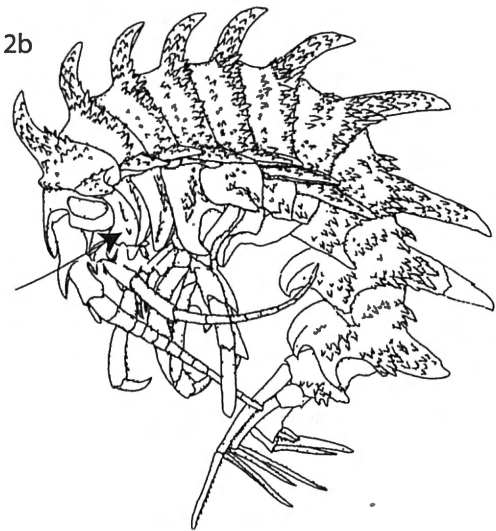
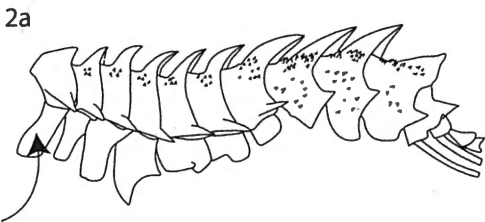
molar broad and blunt, simple. Lower lip inner lobes absent. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate as long but not as broad as outer plate, latter short; palp article 2 narrow and unproduced; palp article 4 well developed. Coxa 2 short; coxa 4 long, weakly bicuspidate. Gnathopods alike, propodi and dactyli elongate, narrow, both gnathopods simple. Telson broad, entire or incised.

Key to the species of *Acanthonotozomella*

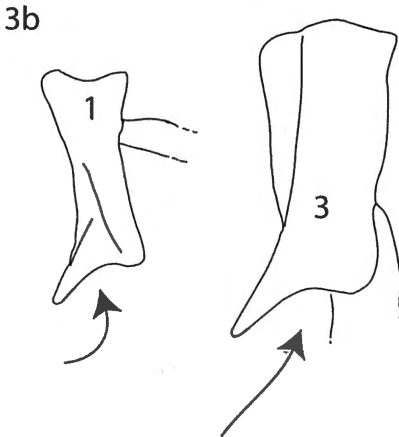
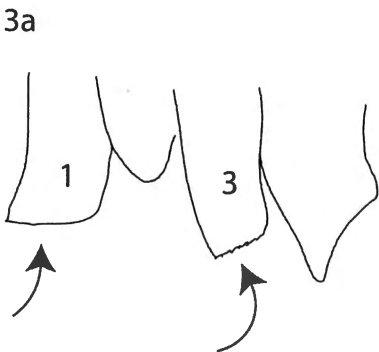
- | | |
|--|---|
| 1a. Dorsal surface with small teeth | 2 |
| 1b. Dorsal cuticle with carinae, but small teeth lacking | 3 |



- | | |
|------------------------------------|----------------------|
| 2a. Coxae smooth | <i>A. barnardi</i> |
| 2b. Coxae covered with small teeth | <i>A. rauscherti</i> |



- | | |
|---------------------------------------|----------------------|
| 3a(1). Apex of coxae 1 and 3 truncate | <i>A. alata</i> |
| 3b. Apex of coxae 1 and 3 excavate | <i>A. trispinosa</i> |



Acanthonotozomella alata Schellenberg, 1926a

(Fig. 1a-b, Map 1: rhomb)

References and synonymy. De Broyer *et al.* 2007: 21.

Diagnosis. Head, without rostrum, scarcely as long as pereonite 1; rostrum with raised lateral edges, shorter than first peduncular article of antenna 1; ocular lobe of head with blunt process; anteroventral corner roundly produced. Pereonites 1-7 and pleonites 1-2 each with broad posteriorly curved dorsal process, only that on pereonite 1 is upright, the length of the processes increases from anterior to posterior. The ventral margin of the tergite of each pereonite bears a laterally and posteriorly directed tooth, which has the same shape and length of the dorsal process in segments 2-6. Posterior margin of pleonites 1-2 concave. Pleonite 3 with 2 succeeding dorsal, apically rounded processes, the anterior one is shorter than the posterior, which is as long but not as strong as that of pleonite 1, one small tooth on both sides of the posterior process. Dorsolateral posterior margins of pleonites 1-3 with pointed process; epimera ventrally rounded, posteroventral angle not developed. Urosomite 1 with dorsal process similar shaped to that on pleonite 3, but shorter. Coxa 1 rectangular, anterodistal corner acutely drawn

out, posterodistal corner rounded, distal margin finely serrate, lateral surface with dorsoventral keel; coxa 2 subtriangular with rounded apex, shorter than preceding coxa; coxa 3 is subrectangular, slightly tapering and oblique distally, distal margin shortly serrate, anterodistal corner angular, posterodistal angle rounded; coxa 4 distally pointed, with posteromarginal rounded process; coxae 5-7 rounded, that of pereopods 5-6 with wider and shorter anterior lobe; bases 5-7 with posteromarginal rounded protrusion and distal, narrow rounded lobe that surpasses ischium. Telson wider than long, distally bluntly rounded, somewhat excavate, not reaching the distal margin of uropod 1 peduncle.

Size. Juvenile 3 mm.

Remarks. Similar to *Acanthonotozomella trispinosa*, *A. alata* has 2 dorsal processes on pleonite 3, which is different from *A. barnardi*. Bases 5-6 are straight posteromarginally in *A. barnardi*, but produced in *A. alata* and *A. trispinosa*. These two species are quite similar (see remarks in the description of *A. trispinosa*). They differ strongly in size (3 mm vs. 12 mm) so that it is possible that between these species the „differences are size-related and the two species are synonymous“ (Watling & Holman, 1980).

Type locality. Davis Sea: „Gauss Station“.

Distribution. Only known from type locality.

Depth range. 385 m.

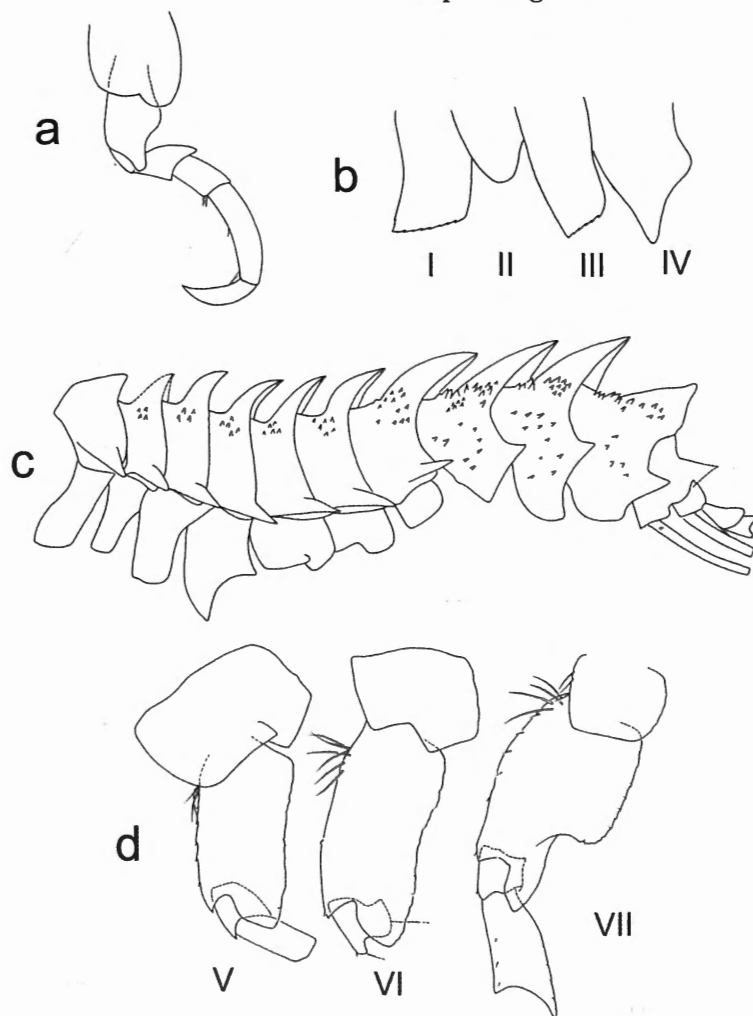


Fig. 1a-d. Details of *Acanthonotozomella alata*, redrawn after Schellenberg, 1926a. a) pereopod 5; b) coxae 1-4. *Acanthonotozomella barnardi* redrawn after Watling & Holman, 1980. c) habitus; d) pereopods 5-7.

***Acanthonotozomella barnardi* Watling & Holman, 1980**

(Fig. 1c-d, Map 1: circle)

References and synonymy. De Broyer *et al.* 2007: 21.

Diagnosis. Head, measured without rostrum, shorter than pereonite 1. Rostrum with raised edges, shorter than peduncular article 1 of first antenna, ocular lobe pronounced. Integument of body covered with small cone-like papillae giving rough appearance. All pereonites and pleonites each with single dorsal carinae curved posteriorly, increasing in size with successive segment, carina on pereonite 1 consisting of a truncate keel; pereon tergites each with stout, posteriorly directing teeth laterally. Carina on pleonite 3 with single, upright process with subacute apex, not projecting beyond posterior segmental margin. Posterior lateral margin of pleonites with acute projection, epimeral plate 1 subacute ventrally, epimeral plate 2-3 rounded anteriorly, more angular posteriorly, but not produced. Urosomite 1 with dorsal tooth (?). Coxa 1 longer and wider than coxa 2, anterior margin somewhat excavate, distally truncate. Coxa 2 narrower and shorter than coxa 1 or 3. Gnathopods 1 and 2 alike, simple. Coxa 4 ventrally pointed, excavate posterodistally. Coxae 5-7 rounded posteriorly; posterior margin of basis 7 excavate, posterodistal corner extending ventrally as subacute lobe beyond distal margin of ischium. Telson probably entire.

Size. Unknown.

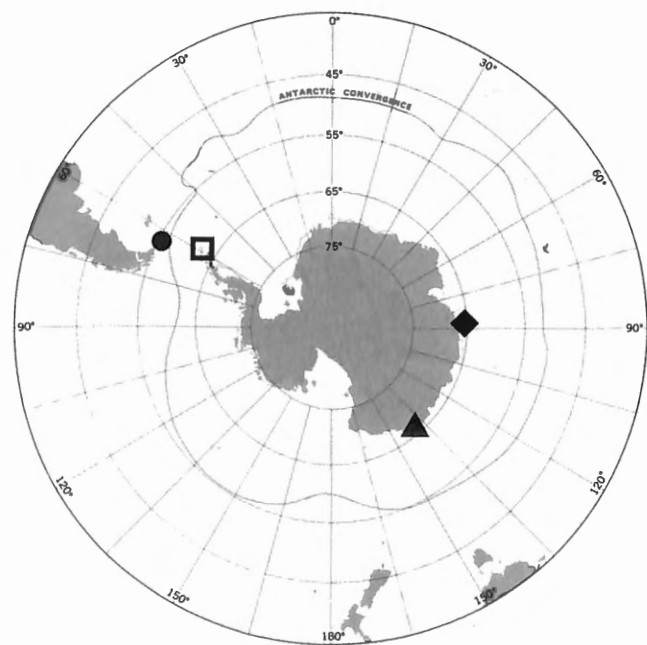
Remarks. *Acanthonotozomella barnardi* differs from *A. alata* and *A. trispinosa* by having a single dorsal process on pleonite 3 (vs. 2 teeth), a distally truncate coxa 2 (vs. rounded or subacute), pereopods 5 and 6 posterior margin of basis not excavate (vs. excavate).

Type locality. Magellan area: 56°06'S 66°19.30'W.**Distribution.** Only known from type locality.**Depth range.** 384-494 m.***Acanthonotozomella rauscheri* Coleman & Jäger, 2001**

(Fig. 2, Map 1: open square)

References and synonymy. De Broyer *et al.* 2007: 21.

Diagnosis. Head slightly longer than pereonite 1, with mid-dorsal keel; rostrum only weakly downturned; lateral margins of rostrum and of anterior head margin slightly upturned; eyes colourless in alcohol, more than 2 times higher than wide. Pereonites 1-7 with narrow dorsal slightly posteriorly curved carinae, those of pereonites 1-5 about the same length, on pereonites 6-7 longer and more directed posteriorly. Additional lateral wing-like processes on pereonites, narrow and slightly curved posteriorly. Pleonites 1-3 with dorsal carinae, those of pleonites 1-2 similar in shape and length to that of pereonite 7, rather straight and longer than on pereonites 1-6. Dorsal process on pleonite 3 shorter and wider. Epimera 1-3 with long pointed posterolateral processes, posteroventral angle of epimeral plate 1 tapering distally and rounded, that of plate 2 and 3 pointed. Urosomite 1 with short dorsal process, urosomite 2 shortest; urosomite 3 posteriorly excavate, posterodorsally angular. Pereonites, pleonites, urosomite 1 and coxae covered with irregular rows of short teeth. Antenna 1 peduncular article 1 longest, expanded, distally ending in one short and one long pointed process; article 2 running out into one long pointed process; article 3 shorter than 2. Antenna 2 article 4 about the length of articles 1-3 combined. Gnathopod 1 coxa deeply excavate anteriorly, weakly convex posteriorly, apex deeply excavate; palm lacking; dactylus with 3 pointed processes on posterior margin. Gnathopod 2 coxa excavate anteriorly, weakly convex posteriorly, apex subacutely pointed, with dentate ridge on lateral face; palm lacking; dactylus with 3 pointed processes on posterior margin. Coxa 3 of similar shape as coxa 2, but slightly longer and wider. Coxa 4 about the same width as coxa 3 proximally, anterior margin weakly sinuous, apex subacute; postermarginal process directed ventrally. Pereopod 5 coxa wider than long, convexly rounded anteriorly, lobate posteriorly, with stout process directing posteroventrally; basis posterior margin excavate (proximal and posteroventral processes). Pereopod 6 coxa wider than long, acute anteriorly and posteriorly; apart from small teeth one stouter one. Pereopod 7 coxa subquadrate with subacute posteroventral angle; basis anteromarginally convex with long setae proximally, posterior margin sinuous, excavation on distal half, posteroventral angle subacute. Pleopod 1 length of peduncle 3 x width; coupling hooks with some lateral teeth; inner ramus shortened. Uropod 1 peduncle longer than rami, setation only on lateral margin; outer ramus slightly shorter than inner. Uropod 2 peduncle shorter than inner ramus, setation only on lateral margin; outer ramus 75% of inner. Uropod 3 peduncle shortest, outer ramus 85% of inner ramus. Telson wider than long, with a shallow depression apically.



Map 1. *Acanthonotozomella alata*: rhomb; *Acanthonotozomella barnardi*: circle; *Acanthonotozomella rauscheri*: open square; *Acanthonotozomella trispinosa*: triangle.

Size. Female 11 mm.

Remarks. This species is similar to *A. barnardi* in the following characters: a single row of dorsal carinae on pereon and pleon; lateral pointed and projecting processes on pereon segments; fine teeth that cover part of the pereonites and pleonites dorsally; shape of dorsal head keel and raised lateral margins of rostrum. However, there are a number of differences between these taxa (see Table 1).

The two other species from the genus *Acanthonotozomella* can easily be distinguished from the *A. rauscherti*. *Acanthonotozomella alata* does not have any short teeth on the dorsal body cuticle and the apices of pereopod coxa 1-4 are very different: coxa 1 truncate, coxa 2 shortened considerably and rounded, coxa 3 obliquely truncate, coxa 4 only weakly excavate posteriorly.

Also *A. trispinosa* differs in many respects from *A. rauscherti*:

Table 1. Differences between *Acanthonotozomella rauscherti* and *A. barnardi*.

	<i>A. rauscherti</i>	<i>A. barnardi</i>
dorsal carinae	narrow, upright, long,	on pereonite 1 wide and short, on other segments short and strongly curved posteriorly
teeth on dorsal body surface	dense, also carinae covered with teeth laterally	sparse, not on carinae
teeth on lateral face of coxae	present	absent
peduncular articles 1-2 of antenna 1	with long distal processes	without processes
coxa 1 apex	deeply excavate	rounded
coxa 2 apex	acute	truncate
coxa 3 apex	subacute	truncate
posteroventral corner of epimeral plates 2-3	produced and pointed	angular
posterior margin of pereopod 5 basis	excavate	straight
posterior margin of pereopod 6 basis	deeply excavate, with proximal rounded lobe and posteroventral acute process	only weakly excavate, posteroventrally rounded

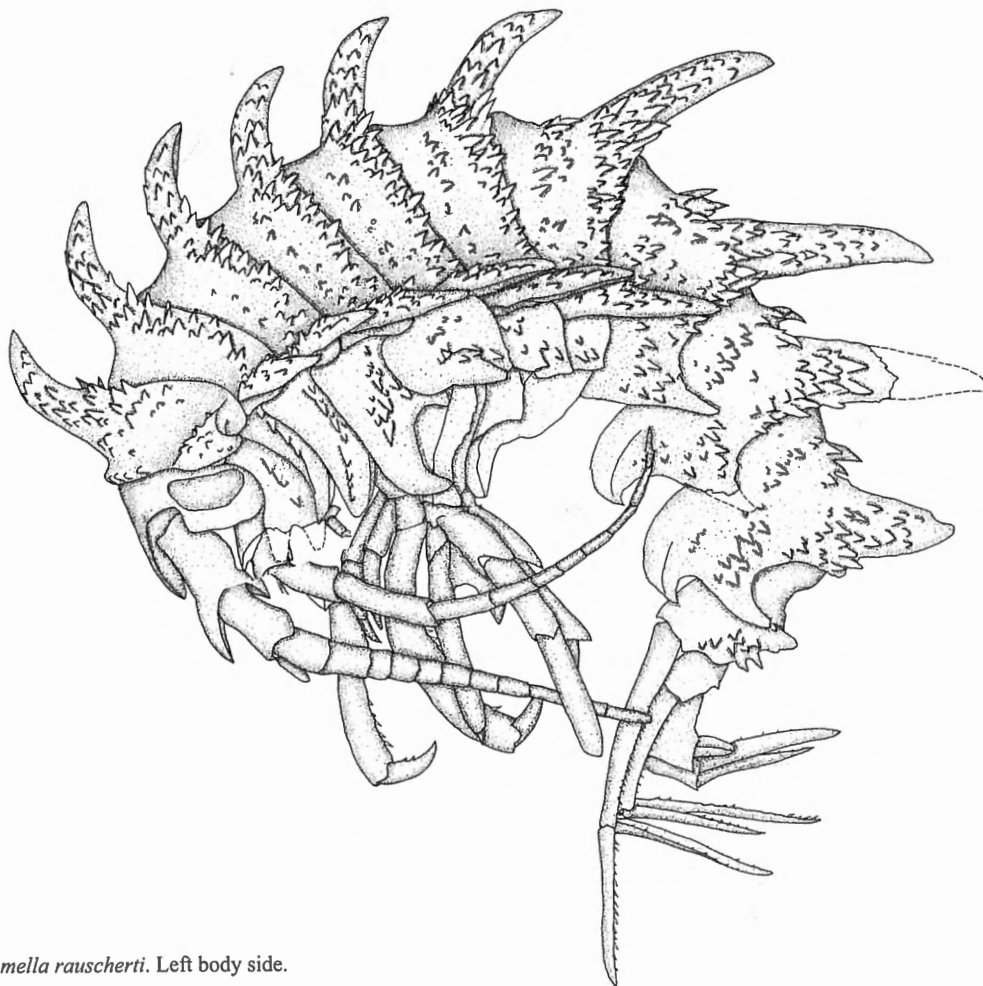


Fig 2. *Acanthonotozomella rauscherti*. Left body side.

it has no small teeth dorsally; coxa 1 is strongly expanded anterodistally and has a shallow apical depression; coxa 3 is similarly to coxa 1 anterodistally widened; basis, merus and carpus of pereopods 5-6 with acutely produced processes posteriorly.

Type locality. Drake Passage: 62°21.9'S 58°41.1'W.

Distribution. Only known from type locality.

Depth range. 1000 m.

***Acanthonotozomella trispinosa* (Bellan-Santini, 1972a)**

(Fig. 3a-j, Map 1: triangle)

References and synonymy. De Broyer *et al.* 2007: 21.

Diagnosis. Head with small flexed rostrum; ocular lobe pointed. Pereonites with mid-dorsal, posteriorly curved carinae; posterior corners of tergites drawn out to long,

pointed, posteriorly directed processes. Pleonite 1 with dorsal carina, similar to that of pereonite 7. Pleonite 2 with dorsal carina and additional process on its dorsal curvature, pleonite 3 with 2 upright, dorsal processes, the posterior one with a tooth on both sides; lateral posterior margins of pleonites produced, on pleonite 1 angular, on pleonites 2-3 acute; all epimeral plates with ridges, which flow into a weakly pointed posteroventral corner. Urosomite 1 with upright tooth. Coxa 1 distally expanded, anteroventral corner drawn out, ventral margin somewhat excavate. Coxa 2 tapering distally with subacute apex; both gnathopods alike, simple, without palm. Anteroventral corner of coxa 3 acutely drawn out, ventral margin concave. Coxa 4 tapering distally, with pointed apex and posteromarginal tooth; Coxa 5 with subacute tooth on distolateral surface. Coxa 6 subquadrate, posterodistal angle acute. Coxa 7 anteriorly excavate; pereopods 5-7 each with posteromarginal acute tooth and posterodistal pointed lobe; ischium on pereopod 5 with acute anterodistal corner; merus and carpus of pereopods 5-6 expanded distally and

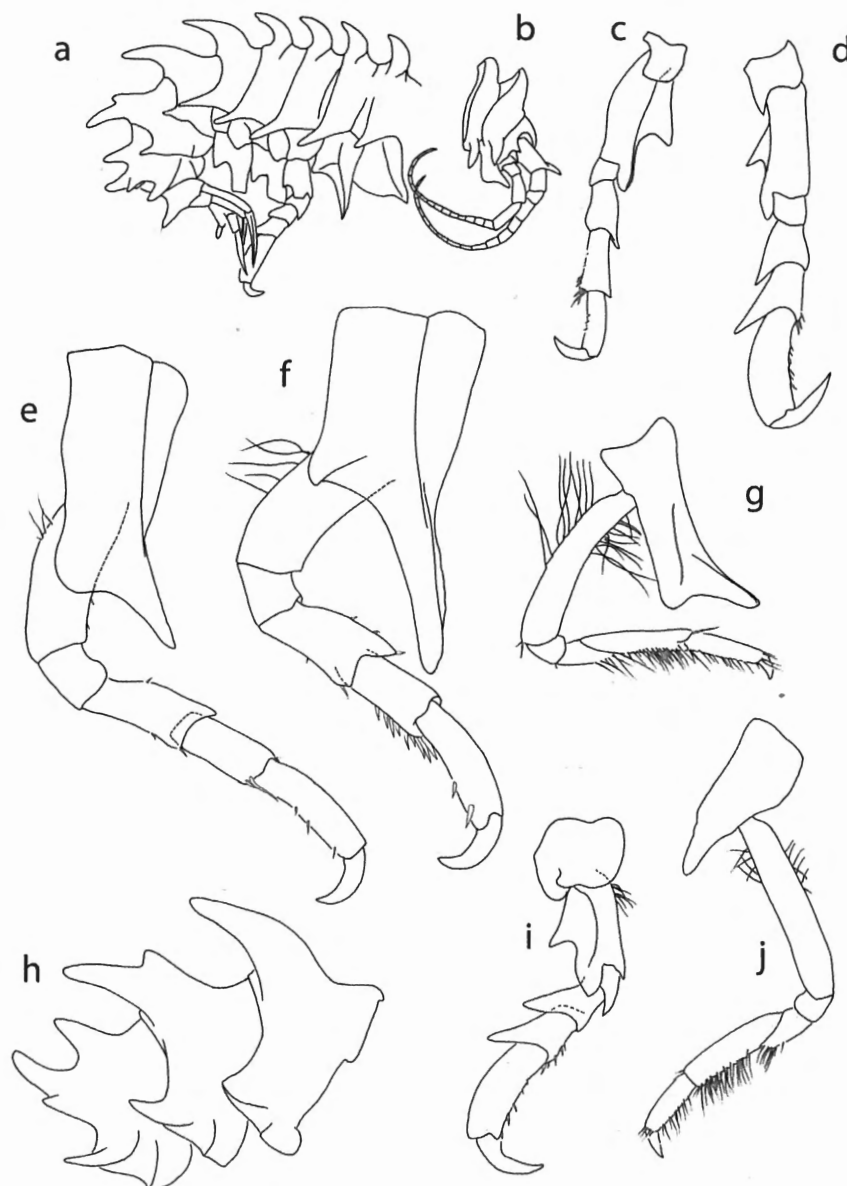


Fig. 3a-j. *Acanthonotozomella trispinosa*, redrawn after Bellan-Santini (1972a). a) right body side; b) head with pereonites 1-2; c) pereopod 7; d) pereopod 6; e) pereopod 3; f) pereopod 4; g) gnathopod 1; h) pleosome; i) pereopod 5; j) gnathopod 2.

posterodistally acutely produced, but less produced on pereopod 7. Telson entire and apically truncate.

Size. Female 12 mm.

Remarks. *Acanthonotozomella trispinosa* is similar to *A. alata*, especially in the dorsal carination. Differences between these species are: coxa 2 is distally rounded in *A. alata* (vs. subacute in *A. trispinosa*); antenna 1 peduncular article 1 with dorsal tooth in *A. trispinosa*, which is wanting in *A. alata*; posterior margin of the basis of pereopods 5-7 is rounded dorsal of excavation, but forms an acute lobe in *A. trispinosa*. Watling & Holman (1980) note: "since these species also differed strongly in size (*A. alata*, 3 mm; *A. trispinosa*, 12 mm) it is possible that the above differences are size-related and the two species are synonymous."

Type locality. Adélie Coast: Cape Géodésie, 66°40'S 139°51'E.

Distribution. Only known from type locality.

Depth range. 120-130 m.

Acanthonotozomoides Schellenberg, 1931a

Type-species. *Acanthonotozomoides sublitoralis* Schellenberg, 1931a.

Diagnosis (modified after Barnard & Karaman, 1991). Body covered with teeth or processes. Antenna 1 peduncular articles 1-2 subequal. Mouthparts projecting conically. Upper lip incised; epistome not very broad. Mandibular incisors elongate, narrow, slightly toothed; setal row present; molar absent. Lower lip inner lobes absent. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate as long but much narrower than outer plate, latter elongate; palp article 2 slightly produced (see Bellan-Santini, 1972a); palp article 4 small. Coxae ordinary, coxae 1-4 progressively longer; coxa 4 polycuspidate. Gnathopods alike, carpus and propodus elongate, narrow, both gnathopods simple. Telson entire.

Acanthonotozomoides oatesi (K.H. Barnard, 1930)

(Fig. 4a-b, Colour plate 1a, Map 2: rhomb)

References and synonymy. De Broyer *et al.* 2007: 21.

Diagnosis. Head with long flexed, narrow rostrum, lateral margins minutely serrate and turned up, eyes small, rounded, bulging; ocular lobe of head subacutely produced; anteroventral corner drawn out narrowly, longer than gnathopod 1 coxa. Each pereonite and pleonites with paired dorsal processes with minutely serrate margins; that on pereonite 1 broad, on segment 2 narrower with rounded apex, from pereonite 3 on pointed, curved posteriorly, increasing in size on succeeding pereonites and pleonites 1-2; each tergite of pereonites with lateral long, wing-like pointed processes, curved posteriorly, narrower on pereonites 6-7, minutely serrate anterior and lateral margins. All pleonites with long pointed, laterally

ridged process on lateral posterior margins; epimeral plates of pleonites 1-3 with ridge on lateral surface and pointed posteroventral corner; pleonite 3 different from pleonites 1-2 in having an unpaired mid-dorsal process and a pair of upright processes close to the posterior margin. Urosomite 1 with unpaired, upright, mid-dorsal process and 2 shorter dorsolateral projections on posterior margin; urosomite 3 with 2 posteromarginal acute processes, uropods with long slender rami. Coxae 1-3 tapering distally, with very narrow pointed apex, margins of distal region somewhat serrate, ridge on lateral surface. Coxa 4 excavate anteromarginally, with long, narrow, ventral and posterior process, forming a deep distal excavation, strong ridge on lateral surface, connected to posteromarginal process. Coxae 5-6 with long narrow process with serrate margins. Coxa 7 with small tip on posteroventral corner; bases 5-7 with ridge which flows into posterodistal long process, anterior margin of bases 5-7 straight, that of pereopod 7 convex; ischium of pereopod 5-7 pointed anterodistally, merus with long posterodistal process, carpus with short process. Telson longer than wide, apically entire and rounded.

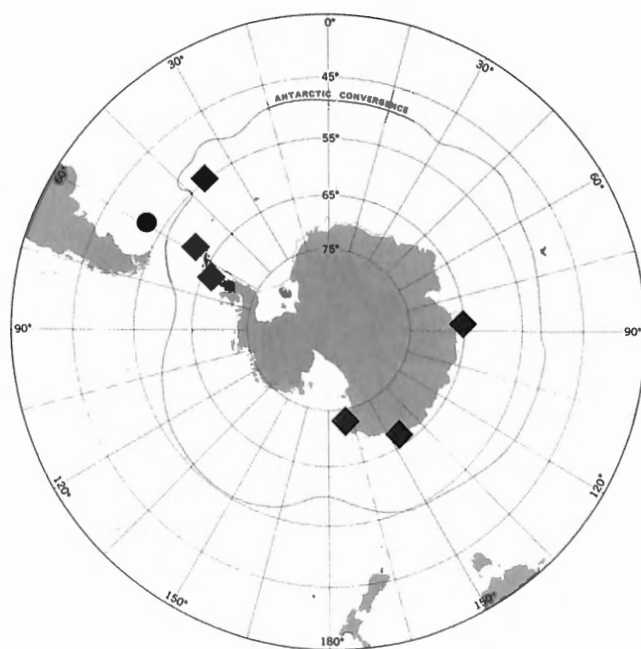
Size. Ovigerous female 7-13 mm, male 6.5-9 mm.

Remarks. *Acanthonotozomoides oatesi* differs from the closely related *A. sublitoralis* in having only 1 pair of dorsal processes on pereonite 1.

Type locality. Ross Sea: Cape Adare.

Distribution. Adélie Coast; Davis Sea; Ross Sea; South Georgia; South Shetland Islands; Palmer Archipelago.

Depth range. 68-236 m.



Map 2. *Acanthonotozomoides oatesi*: rhomb; *Acanthonotozomoides sublitoralis*: circle.

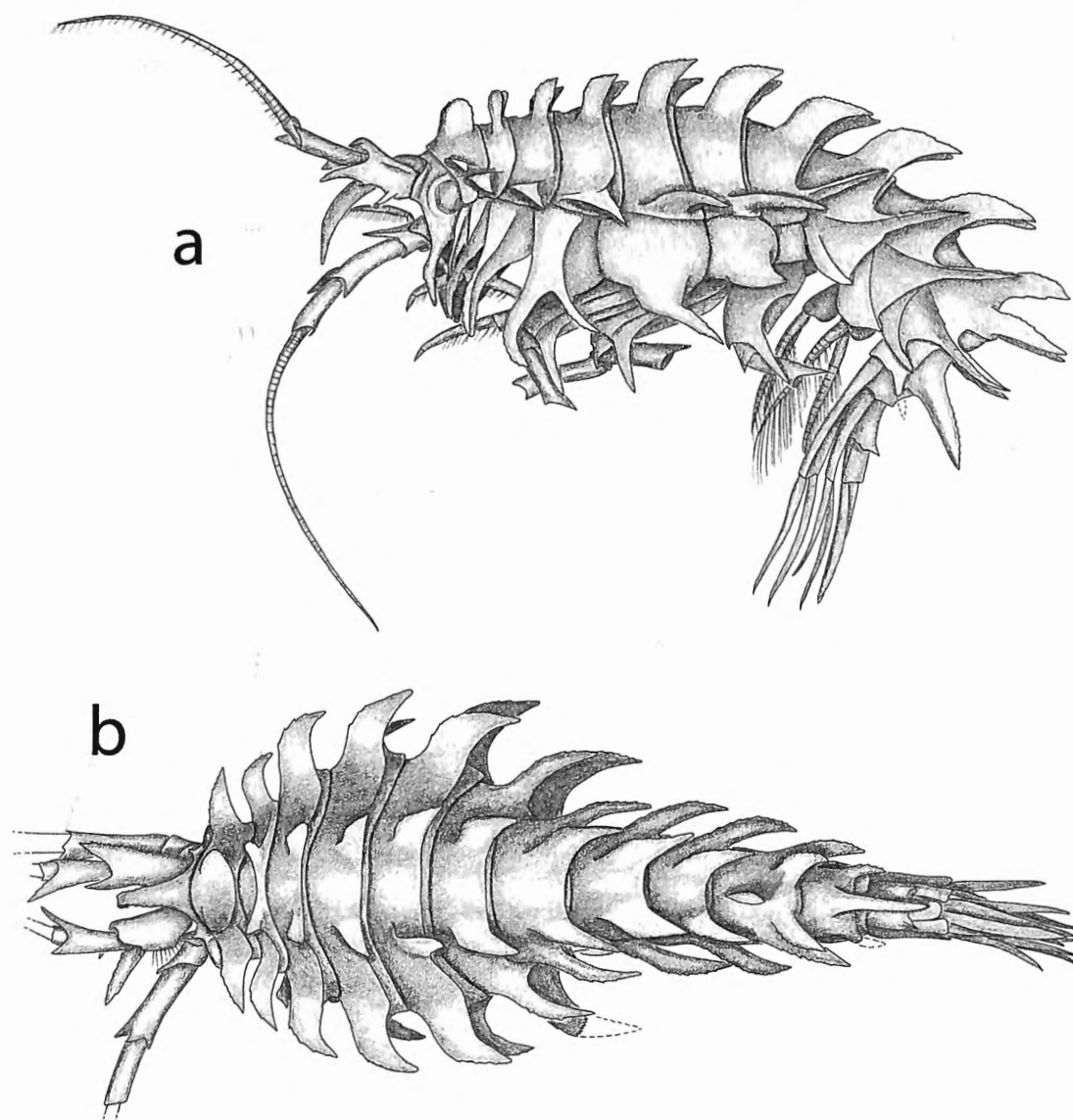


Fig. 4a-b. *Acanthonotozomoides oatesi*. a) left side of habitus; b) dorsal side of habitus

Acanthonotozomoides sublitoralis Schellenberg,
1931a

(Fig. 5, Map 2: circle)

References and synonymy. De Broyer *et al.* 2007: 22.

Diagnosis. Rostrum proximally slightly bulging dorsally, distally straight, tip slightly turned upwards, projecting as far as anteroventral corner of head, eyes large, oval, rounded and bulging; ocular lobe of head subacutely produced; anteroventral corner drawn out narrowly, longer than gnathopod 1 coxa. Each pereonite and pleonite with paired dorsal processes with minutely serrate margins, on first pereonite 2 pairs, from segment 2 on curved posteriorly, increasing in size on succeeding pereonites and pleonites 1-2; each tergite of pereonites with lateral long, wing-like pointed processes, curved posteriorly. All pleonites with long pointed, laterally ridged process on lateral posterior margins; epimeral plates of pleonites 1-3 with ridge on

lateral surface and pointed posteroventral corner; pleonite 3 different from pleonites 1-2 in having an unpaired mid-dorsal process and a pair of upright processes close to the posterior margin. Urosomite 1 with unpaired, upright, dorsal process and 2 shorter dorsolateral projections on the posterior margin; uropods with long slender rami. Coxae 1-3 tapering distally, with very narrow pointed apex, margins of distal region somewhat serrate, ridge on lateral surface; gnathopod 1 coxa with additional pointed process close to the apex; posterior margin of coxa 2 slightly excavate, anterior and posterior margin of coxa 3 concave. Pereopod 4 coxa excavate anteromarginally, with long, narrow, ventral and posterior process, forming a deep distal excavation, strong ridge on lateral surface, connected to the posteromarginal process. Coxae 5-6 with long narrow process with serrate margins. Coxa 7 small tip on posteroventral corner; bases 5-7 with ridge which flow into posterodistal long process, anterior margins straight; ischium of pereopods 5-7 pointed anterodistally, merus with long posterodistal process, carpus

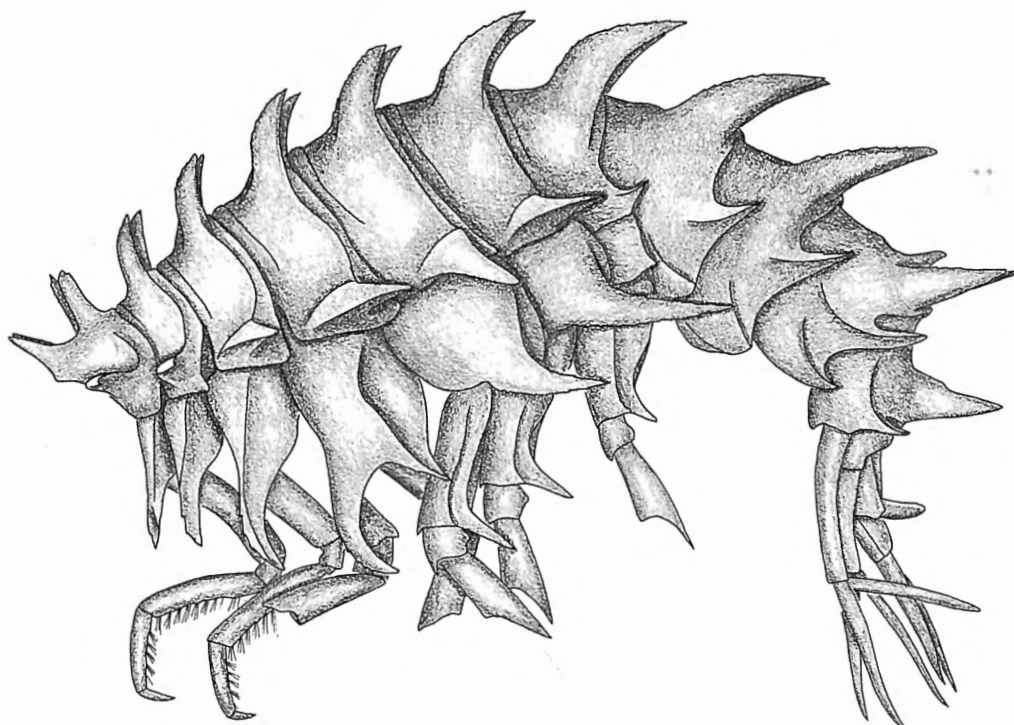


Fig. 5. *Acanthonotozomoides sublitoralis*. Left body side, head is missing.

with short process. Telson longer than wide, apically entire and rounded.

Size. Ovigerous female 9 mm.

Remarks. *Acanthonotozomoides sublitoralis* differs from the closely related *A. oatesi* in having 2 pairs of dorsal processes on pereonite 1 and a bidentate coxa 1.

Type locality. Falkland Islands: 52°29'S 60°36'W.

Distribution. Only known from type locality.

Depth range. 197 m.

teeth. Epimeral plate 3 lacking 2 large cusps. Uropods 1-3 biramous. Rami of uropod 3 flattened, lanceolate, 1-articulate. Telson entire or weakly incised, generally not longer than peduncle of uropod 3.

List of genera. *Amathillopsis* Heller, 1875; *Parepimeria* Chevreux, 1912; *Cleonardopsis* K.H. Barnard, 1916.

Amathillopsis Heller, 1875

Type species. *Amathillopsis spinigera* Heller 1875

AMATHILLOPSIDAE Pirlot, 1934

Diagnosis (after Coleman & Barnard, 1991). Rostrum of medium size or very small. Antennae elongate, flagella with 5+ articles; accessory flagellum 1-2 articulate. Mouthpart field quadrately developed. Epistome and upper lip broad, short, entire. Incisor of mandible ordinary, toothed; raker row strong; molar large and tritulative, palp always present, 3-articulate. Lower lip with inner lobes, without distinct inner notches. Inner plate of maxilla 1 ordinary, apically medially setose; outer plate oblique. Inner plate of maxilla 2 without facial setae. Palp of maxilliped 4-articulate, article 2 not produced medially. Coxa 1 scarcely to not acuminate, mostly truncate. Coxae 2-3 more or less acuminate; coxa 1 but not 4 shortened. Coxa 4 not strictly acuminate, with weak or posteroventral lobe. Coxa 5 at least slightly shorter than coxa 4. Gnathopods of moderate size, gnathopod 2 usually slightly longer than gnathopod 1; gnathopods 1-2 propodosubchelate, carpi lobed, propodi enlarged and almost almond-shaped. Bases of pereopods 5-7 occasionally with posterior cusps or

Diagnosis (modified after Barnard & Karaman, 1991). Body covered with teeth or processes. Antenna 1 peduncular articles 1-2 long, subequal; or 1 shorter than 2. Mouthparts projecting quadrately. Upper lip incised or entire, very broad, thin, elongate. Mandibular incisor ordinary, toothed; raker row present; molar broad and blunt, tritulative. Inner lobes of lower lip present, weak, or coalesced. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate shorter but scarcely narrower than outer plate, latter short; palp article 2 narrow and apicomediaally unproduced; palp article 4 well developed. Coxae 1-4 progressively longer; coxa 4 mono- or polycuspidate. Gnathopods slightly enlarged, alike, carpi and propodi ordinary, stout, carpi lobate, both gnathopods weakly subchelate. Uropod 1-2 apices of rami without robust setae. Telson longer than broad, entire or incised.

Amathillopsis charlottae Coleman, 1998

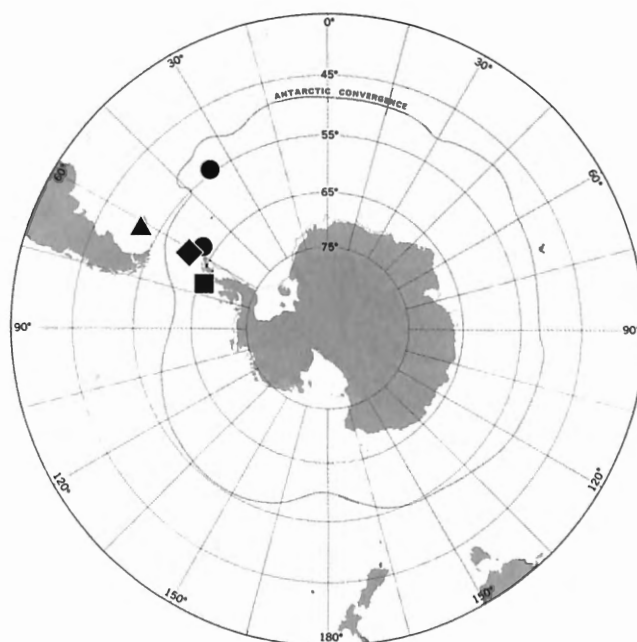
(Fig. 6, Map 3: square)

References and synonymy. De Broyer *et al.* 2007: 22.

Diagnosis. Head with short rostrum; eyes no ommatidia visible. Pereonites 2-4 indistinctly keeled dorsally; pereonite 5 with short carina and pereonites 5-6 with long pointed, weakly posteriorly curved processes. Similar but slightly longer processes on pleonites 1-2 and a shorter one on pleonite 3, about half the length of that on pleonite 2. Epimeral plate 1 ventrally truncate, obtuse posteroventrally; plate 2 posteroventrally acute, plates 1 and 2 laterally ridged; posterolateral margin of epimeral plate 3 sinuous, posteroventral angle acute. Urosomite 1 as long as segment 2 and 3 combined; urosomite 2 shortest; urosomite 3 with shallow keel, slightly overreaching posterior margin, with shallow depression in lateral view. Antenna 1 peduncular article 1 subequal in length to article 2, article 3 less than one third the length of article 2; accessory flagellum uniarticulate; flagellum consisting of numerous, short articles, calceoli present. Antenna 2 peduncular article 4 longest, weakly tapering; article 5 slender, subequal to articles 1-3 combined; flagellum consisting of numerous, short articles, calceoli present. Upper lip wider than long with convex margin, entire. Mandible incisor with sharp teeth; lacinia mobilis wide and with similar teeth; raker row present; pars molaris weakly ridged. Lower lip small inner lobes present, outer lobes wide and distally rounded, with groups of stout setae mediolaterally. Maxilla 1 inner lobe wide distally, with plumose setae mediolaterally; outer plate with 11 slender apical setae; palp 2-articulate. Maxillipeds slender and covered with numerous setae; inner plates short with 3 nodular setae medioapically; palp articles 2-4 elongate, article 2 longest. Gnathopod 1 subchelate; coxa 2/3 the length of coxa 2-4 and narrower, with anteroventral shallow excavation; basis anterior margin straight, posterior margin convex, drawn out into a rounded lobe posterodistally; carpus distally expanded with posterior

lobe; propodus slender; dactylus long, with row of minute hair-like setae on posterior and few on anterior margin. Gnathopod 2 similar to gnathopod 1, but all articles somewhat longer and more slender. Coxa 3 longer than on preceding appendages, apex oblique with shallow depression. Coxa 4 sharply pointed with oblique rather straight apex, subequal in length to pereopod 3.

Pereopod 5 longest; coxa wider than long; basis subrectangular with proximal short rounded lobe, directed dorsally. Pereopod 6 coxa similar to that of pereopod 5, but somewhat wider. Pereopod 7 shorter than pereopods 5 and 6; coxa smallest of all pereopods; basis shorter and wider proximally compared to pereopods 5 and 6, tapering distally. All uropod peduncles and rami densely bordered with short spiniform setae, outer rami shortened. Uropod 1 peduncle equal to inner ramus. Uropod 2 peduncle shorter than rami. Uropod 3 peduncle



Map 3. *Amathillopsis charlottae*: square; *Parepimeria bidentata*: circle; *Parepimeria crenulata*: rhomb; *Parepimeria irregularis*: triangle.

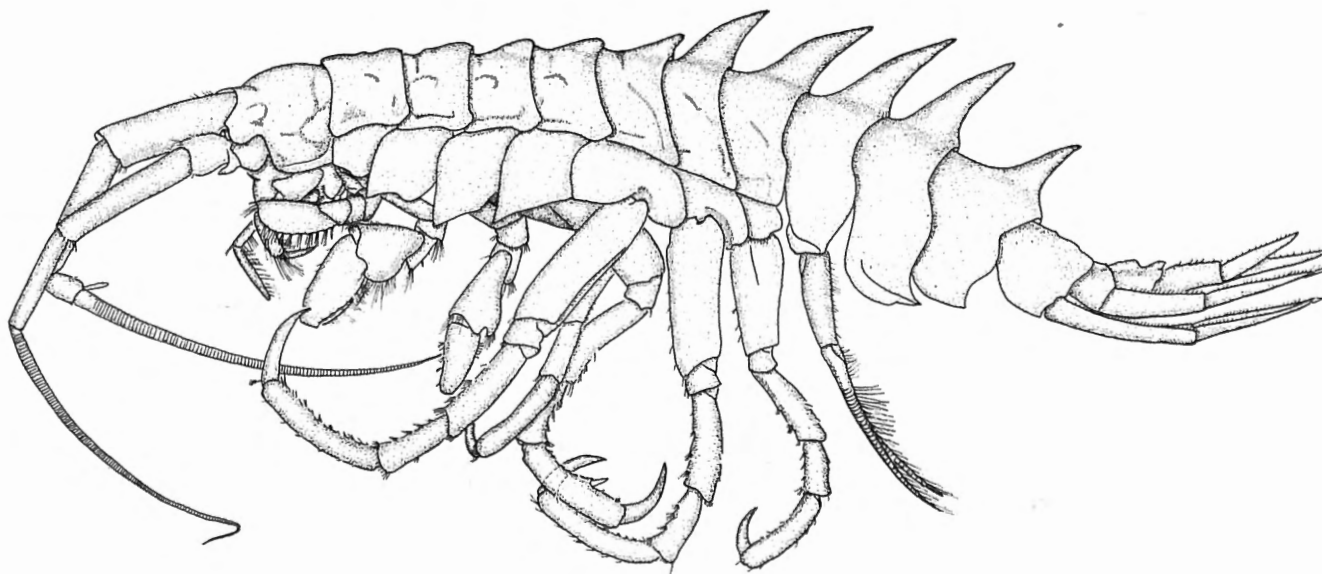


Fig. 6. *Amathillopsis charlottae*. Left body side.

wide with some stouter spines on outer margin, outer ramus shortened. Telson longer than wide, entire, convex distally, with 2 pairs of plumose setae on dorsal surface and some microtrichs.

Size. Females 23-30 mm, males 17-30 mm.

Remarks. *Amathillopsis charlottae* is the only Antarctic species of the subfamily. It is similar to *Amathillopsis australis* Stebbing, 1888, *Amathillopsis grevei* Barnard, 1961 and *Amathillopsis atlantica* Chevreux, 1908 in having a middorsal carina or tooth on pleonite 3 that is about half the length of that of pleonite 2 and urosomite 1 lacks a dorsal process, whereas all other known species from this genus have a process on pleonite 3 that is less than half the length of that of pleonite 2 or, if it is longer then urosomite 1 bears a tooth. *Amathillopsis australis*, however, differs from the *A. charlottae* in its subacute labrum (vs. rounded); in the length relationship of mandibular palp articles $2:3 = 0.65$ (vs. 0.9); in the distally strongly expanded basis of gnathopod 2 and the excavated posterior margin (vs. convex); its elongate coxal plates 3 and 4; the dorsal process on pleonite 3 not being upright as in *A. charlottae*, but directed posteriorly; and the emarginate telson (vs. entire). *Amathillopsis grevei*, similar to *A. charlottae*, has short coxae 3-4 and epimeral plate 1 ventrally truncate. However, it has rather small carinae, the accessory flagellum is 2-articulate (vs. uniarticulate), and the telson is emarginate (vs. entire). *Amathillopsis atlantica* has very narrow dorsal carinae viewed laterally, posteroventral pointed processes on epimera 2-3 are missing, and the telson tapers distally and is notched. Two other species have an additional dorsal process on urosomite 1: *Amathillopsis septemdentata* Ledoyer, 1978 has a long carina on pleonite 3,

but also a short dorsal process on urosomite 1, a much longer mandibular palp article 3 than 2 (ratio segment $2:3=0.65$, vs. 0.9), and elongate and narrow dorsal carinae (vs. shorter and wider) and sinuous anterior margins of coxae 3-4 (vs. straight), so that the tips of the apices appear curved anteriorly and coxa 2 is deeply excavate distally; bases 5-7 are without the small dorsal lobes that are developed in *A. charlottae*. In *Amathillopsis spinigera* Heller, 1875 the dorsal carinae begin on pereonite 1, urosomite 1 with dorsal process, and coxae 3-4 are excavate distally.

Type locality. Antarctic Peninsula: 66°33.10'S 68°41.90'W.

Distribution. Only known from type locality.

Depth range. 607 m.

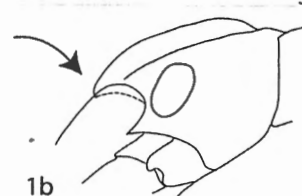
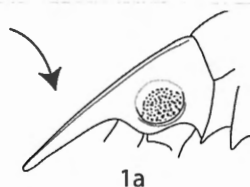
Parepimeria Chevreux, 1912

Type species. *Parepimeria crenulata*, Chevreux 1912

Diagnosis (modified after Barnard & Karaman, 1991). Body covered with teeth or processes, or weakly so (*P. irregularis*). Antenna 1 peduncular articles 1-2 long, subequal. Mouthparts projecting quadrately. Upper lip incised; epistome not very broad. Mandibular incisor narrow, toothed; raker row long; molar broad and blunt, triturative. Lower lip inner lobes weak. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2: inner plate without facial row of setae. Maxilliped plates alike, outer plate short; palp elongate, article 2 narrow and unproduced; palp article 4 well developed, unguiform. Coxae 1-4 progressively longer; coxa 4 monocuspidate. Gnathopods alike, of different sizes, carpus and propodus elongate, narrow; both gnathopods simple. Telson entire.

Key to the Antarctic species of *Parepimeria*

- 1a. Rostrum elongate
- 1b. Rostrum short or lacking

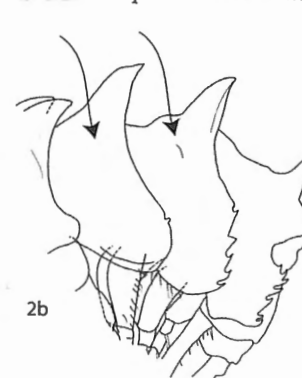
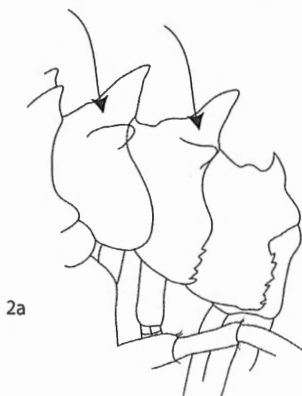


Parepimeria crenulata

Parepimeria bidentata

- 2a. Pleonites 1-2 with dorsolateral pointed process on both sides of carinae

- 2b. Pleonites 1-2 without dorsolateral pointed process on both sides of carinae

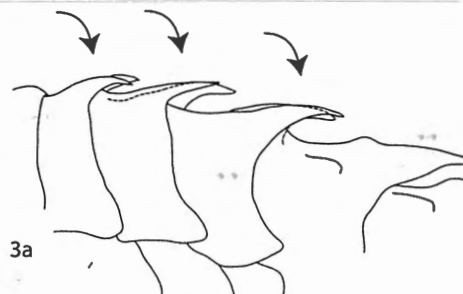


3a(1). Long, slender paired processes restricted to pereonites 5-7

Parepimeria major

3b. Short paired processes on more or less pereonites

4

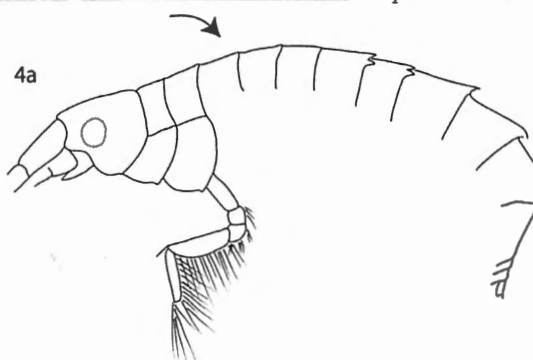


4a. Paired dorsal processes on pereonites 6-7 only

Parepimeria irregularis

4b. Paired dorsal processes on pereonites 2-7

Parepimeria minor



Parepimeria bidentata Schellenberg, 1931a

(Fig. 7, Map 3: circle)

References and synonymy. De Broyer *et al.* 2007: 22

Diagnosis. Head including rostrum about as long as pereonites 1-5; rostrum elongate, almost reaching the distal margin of the second article of antenna 1; head dorsally straight from

lateral few, with dorsal keel; anterior head lobe angular. Eyes small, rounded. Paired dorsal processes on pereonites 3-7. Long mid-dorsal carinae on pleonites 1-2; short slightly anterior curved mid-dorsal tooth on pleonite 3. Mid-dorsal keel on pereonites 2-7 wanting. Posteroventral corner of pleonite 1 rounded with 1-3 short teeth posteromarginally; those of pleonites 2-3 serrate. Antenna 1 somewhat shorter than antenna 2. Antenna 2 article 5 slightly longer than article

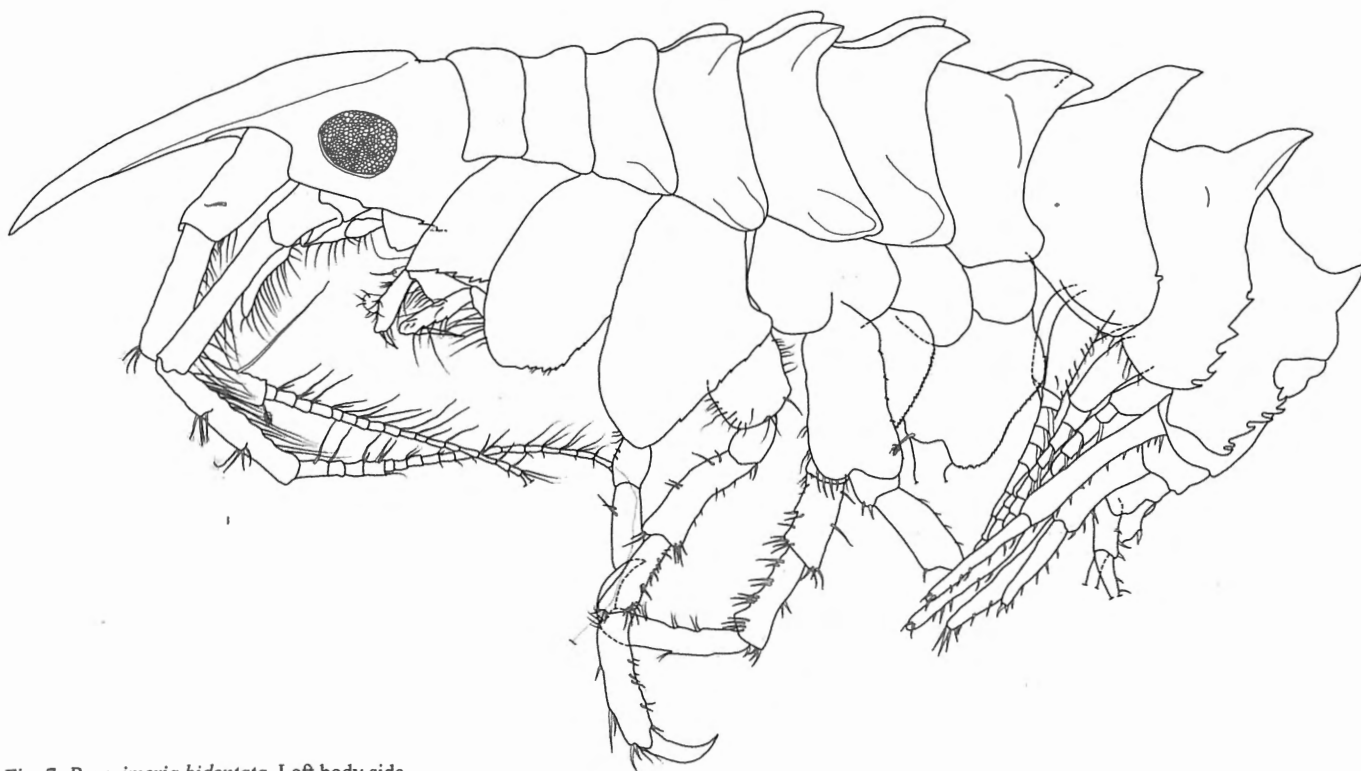


Fig. 7. *Parepimeria bidentata*. Left body side.

4. Lacinia mobilis of mandible 3-4 dentate. Inner plate of maxilla 1 with 5-6 setae. Palp of maxilliped slender, twice as long as outer plate. Coxa 1 pointed and directed anteriorly; apex of coxae 2-3 subacute; coxa 4 rounded distally. Gnathopods slender, simple; carpi tapering distally; propodi half the width of carpi; dactyli slender.

Size. Oviparous female 12-13 mm.

Remarks. *Parepimeria bidentata* is very similar to *P. crenulata*. However, the first mentioned does not have dorsolateral teeth on pleonites 1-2.

Type locality. South Georgia: Shag Rocks, 53°34'S 43°23'W.

Distribution. Antarctic Peninsula; South Georgia.

Depth range. 0-310 m.

Upper lip emarginate. Mandible palp 3-articulate, articles 2-3 elongate and setose ventromarginally. Lower lip with inner lobes, outer lobes rounded with short mandibular processes. Palp of maxilliped slender, twice as long as outer plate. Coxa 1 pointed and directed anteriorly; apex of coxa 2 pointed, that of coxae 3-4 subacute. Gnathopods slender, simple; carpi tapering distally; dactyli slender. Coxae 5-6 bilobed; coxa 7 subrectangular. Bases 5-6 subrectangular; basis 7 rounded posteromarginally. Telson entire.

Size. Female 6-13 mm, male 7-9.5 mm.

Remarks. See remarks for *P. bidentata*.

Type locality. Palmer Archipelago: Chanal de Roosen.

Distribution. South Shetland Islands.

Depth range. 23-391 m.

Parepimeria crenulata Chevreux, 1912

(Fig. 8, Colour plate 1b, Map 3: rhomb)

References and synonymy. De Broyer *et al.* 2007: 22.

Diagnosis. Head including rostrum about as long as pereonites 1-5; rostrum elongate, almost reaching the distal margin of the second article of antenna 1; head dorsally straight from lateral view, with dorsal keel; anterior head lobe rounded. Eyes of moderate size, rounded. Paired dorsal processes on pereonites 3-7. Long mid-dorsal carinae on pleonites 1-2, with dorsolateral teeth; slightly anterior curved mid-dorsal tooth on pleonite 3. Mid-dorsal keel on pereonites 2-7. Posteroventral corner of pleonite 1 rounded; those of pleonites 2-3 serrate. Antenna 1 somewhat shorter than antenna 2. Antenna 2 article 5 slightly longer than article 4.

Parepimeria irregularis (Schellenberg, 1931a)

(Fig. 9a-c, Map 3: triangle)

References and synonymy. De Broyer *et al.* 2007: 23.

Diagnosis. Head as long as pereonites 1-2, without rostrum. Anterior head lobe angular to rounded. Outlines of eyes not clearly visible. Pereonites 6-7 with small dorsal pair of teeth. Pleonites 1-2 each drawn out into mid-dorsal pointed process. Epimeral plate 1 rounded; posterior margin of plate 2 straight, posteroventral corner angular with 2-3 teeth; posteroventral angle of epimeral plate 3 serrate (5-6 dorsally curved teeth). Peduncular articles of antenna 1 subequal in length; accessory flagellum 1-articulate. Upper lip slightly incised. Lower lip with inner lobes; outer lobes small, rounded, widely separate, with short mandibular lobes. Coxa 1 anteroventral angle

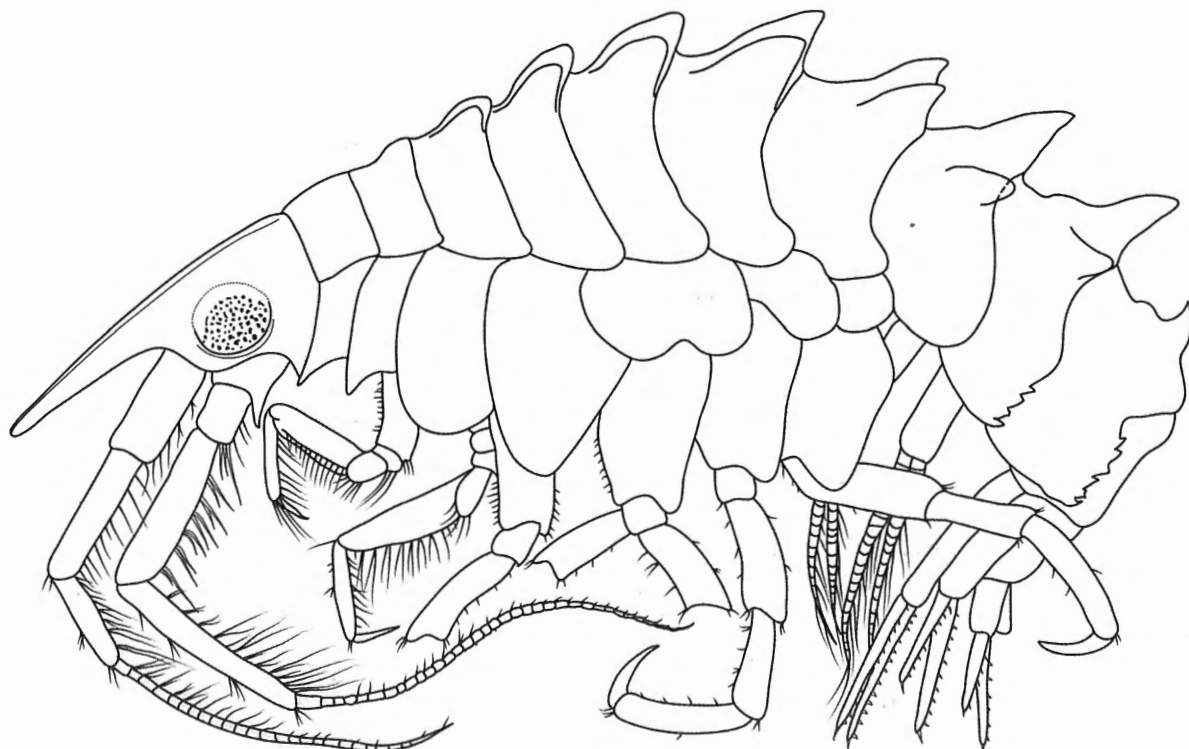


Fig. 8. *Parepimeria crenulata*. Left body side, redrawn after Chevreux (1913).

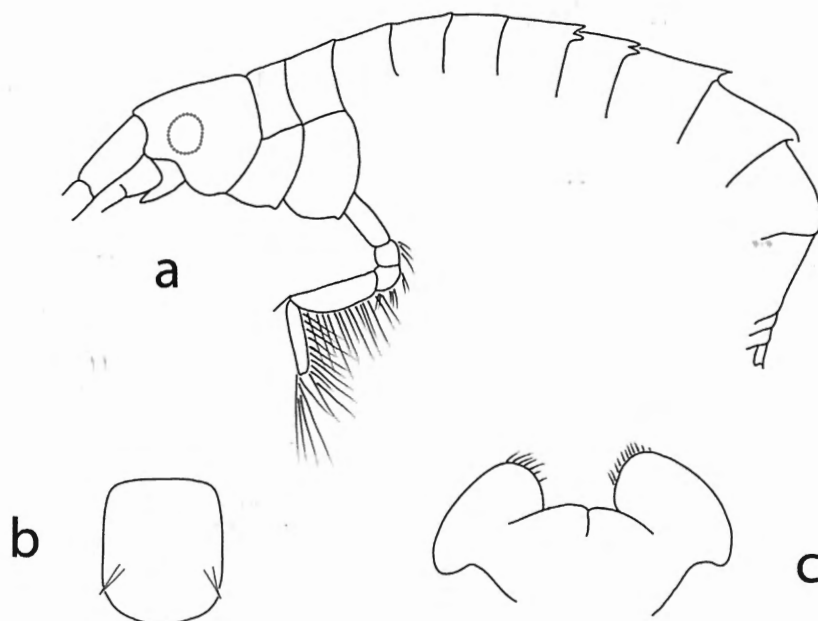


Fig. 9a-c. *Parepimeria irregularis*, redrawn after Schellenberg, 1931a. a) left body side; b) telson; c) lower lip.

pointed; coxae 1-2 truncate, posteroventral angles with short tooth. Gnathopods simple with slender distal articles; carpus largest. Bases 5-7 suboval. Uropod 1 outer ramus slightly shorter than inner, uropods 2-3 outer ramus clearly shorter than inner. Telson subquadrate, with rounded apex, with a spine-like seta on both distal corners.

Size. Ovigerous females 5-5.5 mm.

Remarks. Different from the other species of the genus: rostrum wanting; dorsal armature very short, paired dorsal processes restricted to pereonites 6-7 and carinae on pleonites 1-2.

Type locality. Southwest of Falkland Islands: 52°29'S 60°36'W.

Distribution. Only known from type locality.

Depth range. 197 m.

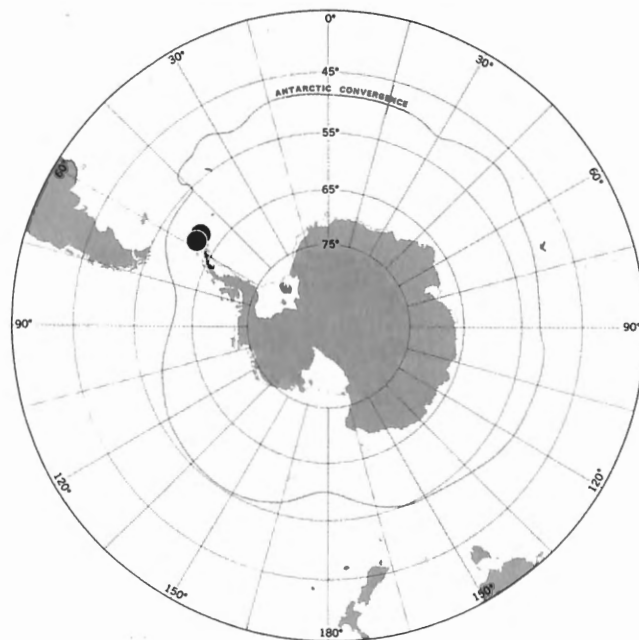
Parepimeria major K.H. Barnard, 1932

(Fig. 10, Map 4: circle)

References and synonymy. De Broyer *et al.* 2007: 23.

Diagnosis. Head as long as pereonites 1-3 combined; eyes relatively large, oval; anterior head lobe angular. Pereonites 5-7 with long slender paired dorsal teeth. Long pointed carinae on pleonites 1-2. Posterior margins of pleonites 1-3 produced, that of pleonite 3 slightly curved dorsally; posteroventral corners of epimeral plates 1-3 pointed, no trace of serration. Coxa 1 pointed and directed anteriorly. Coxae 2-4 with pointed apices; coxa 4 with acute posteromarginal lobe. Gnathopod 1 simple, with wide lobe-like expansion posteriorly, wider than propodus. Bases 5-7 tapering distally, with proximal posteromarginal lobe. Telson subquadrate, apex rounded, with a spine-like seta on both distal corners.

Size. 17 mm.



Map 4. *Parepimeria major*: circle.

Remarks. This species differs from all other species of the genus in the following: long slender paired processes restricted to pereonites 5-7; coxae 1-4 pointed; no serration on epimeral plates 1-3.

Type locality. South Shetland Islands: off Deception Island

Distribution. South Shetland Islands: off Deception Island; off Elephant Island.

Depth range. 381-1080 m.

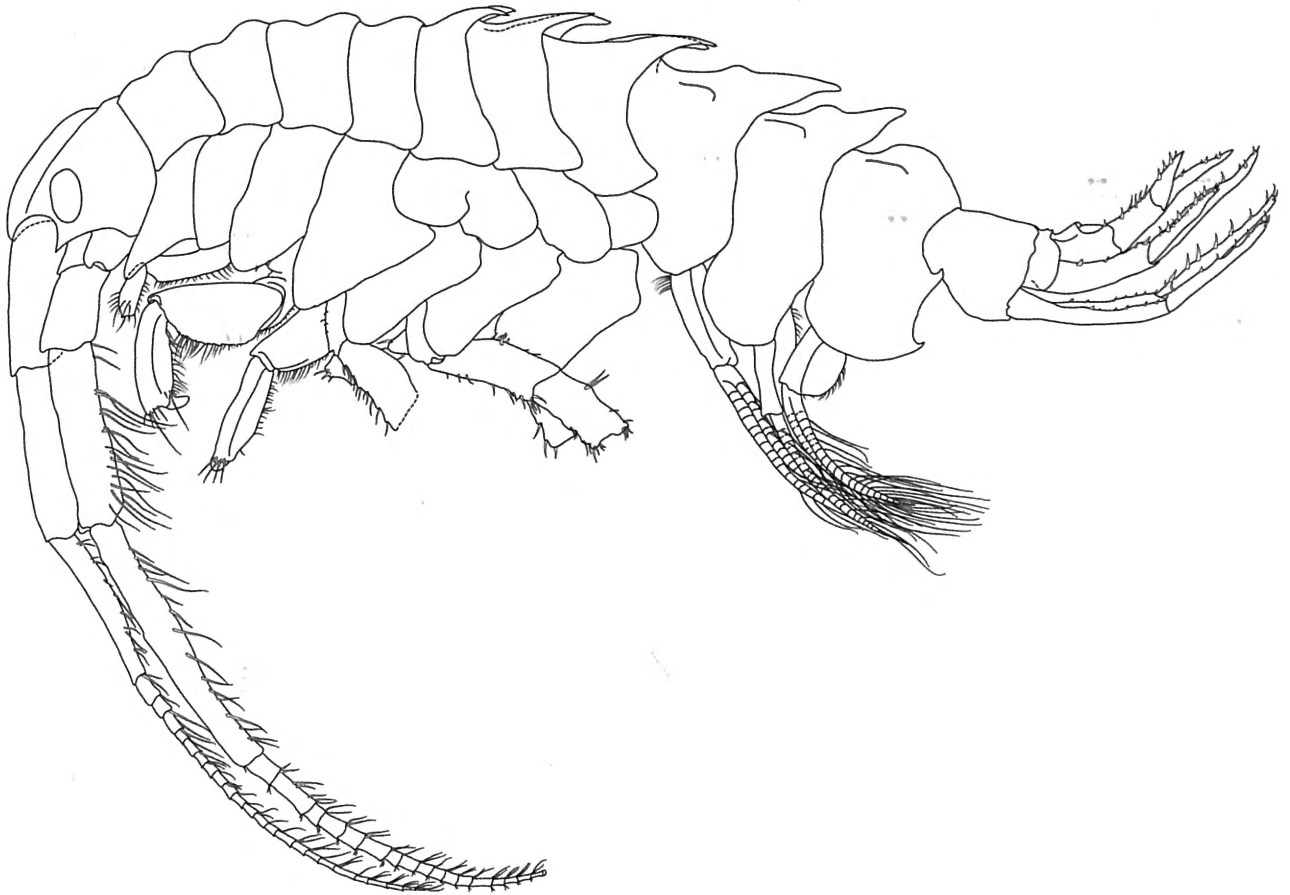


Fig. 10. *Parepimeria major*. Left body side.

***Parepimeria minor* Watling & Holman, 1980**

(Fig. 11a-e, Map 5: circle)

References and synonymy. De Broyer *et al.* 2007: 23.

Diagnosis. Head with dorsal keel; rostrum short and blunt; anterior head lobe angular; eyes very small and rounded. Low paired dorsal processes on pereonites 2-7. Mid-dorsal carinae on pleonites 1-2, pleonite 3 keeled. Epimeral plate 1 rounded, plate 2 with 2 teeth posteroventrally; plate 3 serrate posteromarginally. Mandible with multidentate incisor; lacinia mobilis of right mandible 3-dentate; molar strong and triturative; palp 3-articulate with rows of setae on ventral margins of articles 2-3. Lower lip with rounded widely separate lobes, inner lobes present. Maxilliped 4-articulate; articles 3 and 4 subequal in length. Coxa 1 pointed and drawn out anteriorly. Coxa 2 tapering distally, narrow rounded apex, small tooth posteromarginally. Gnathopods simple, similar to each other, but gnathopod 2 slightly larger than 1; carpi proximally expanded; propodi and dactyli subequal in length. Coxa 4 broadly rounded ventrally, posterior margin excavate proximally.

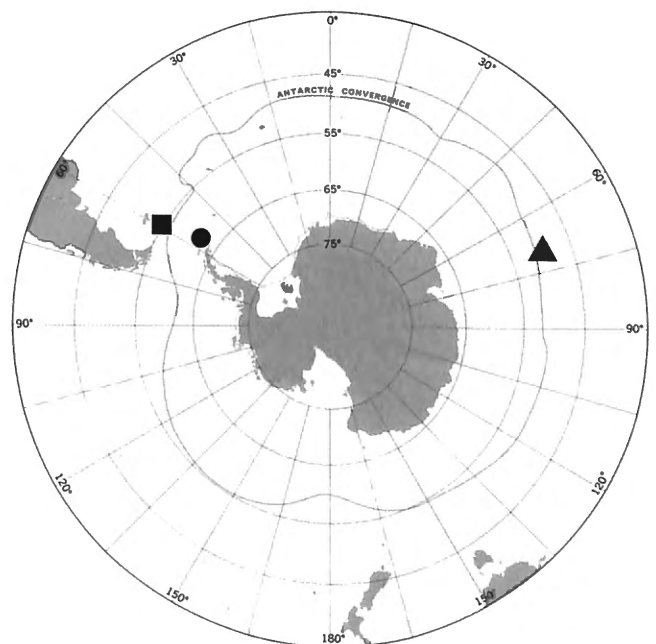
Size. 2-5 mm.

Remarks. Differing from *P. irregularis* in the presence of paired processes on pereonites 2-7 (vs. 6-7), the short rostrum (missing in *P. irregularis*) and the narrow coxae 1-2 (vs. broadly truncate)

Type locality. West of South Shetland Islands: 61°18'-20'S 56°09'-10'W.

Distribution. Only known from type locality.

Depth range. 220-240 m.



Map 5. *Parepimeria minor*: circle; *Dikwa andresi*: square; *Actinacanthus tricarinatus*: triangle.

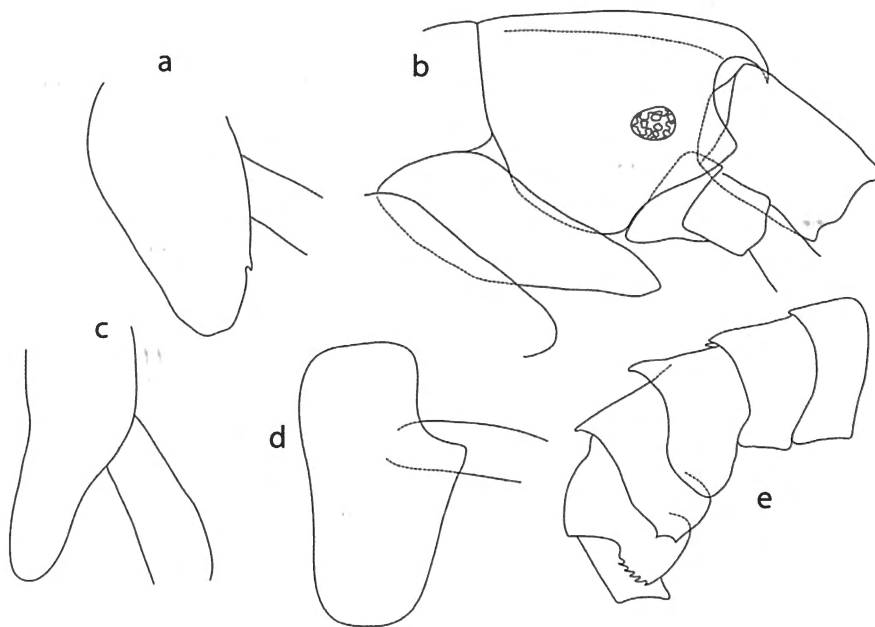


Fig. 11a-e. *Parepimeria minor*, redrawn after Watling & Holman, 1980. a) coxa 2; b) right side of head and coxa 1; c) coxa 1; d) coxa 4; e) pereonites 6-7 and pleonites 1-3 of right body side.

DIKWIDAE Coleman & J.L. Barnard, 1991b

Diagnosis (modified after Coleman & Barnard, 1991b). Body compressed, with dorsal keel or carinae on pereonites 1-5, and carinae on pereonites 6-7 and pleonites 1-3. Head poorly formed, rostrum absent. Antennae elongate, flagella with 5 + articles; accessory flagellum absent. Mouthpart part field quadrately developed. Epistome and upper lip broad, short, incised. Incisor of mandible ordinary, toothed; raker row strong; molar large and triturative; palp 3-articulate. Lower lip without inner lobes, without inner notches. Maxilla 1 palp large, 2-articulate. Palp of maxilliped 4-articulate, article 2 not produced medially. Coxae 3-4 more or less acuminate. Coxa 2 shortened and blunt below, ventral margins not fitting normal ventral parabolic curve of anterior coxae. Coxae 1 and 4 not shortened, apex of coxa 1 truncate to concave. Coxa 4 with small posteroventral lobe. Coxa 5 shorter than posteroventral lobe of coxa 4. Gnathopods feeble and with elongate propodus and dactylus on gnathopod 2, and propodus on gnathopod 1; gnathopod 2 flagellar and much longer than gnathopod 1. Gnathopod 1 propodochelate, gnathopod simple, merus and carpus not produced. Bases of pereopods 5-7 with posterior cusps or teeth. Epimeral plate 3 lacking 2 large cusps posteroventrally. Urosomites free. Uropods 1-3 biramous. Rami of uropod 3 longer than peduncle, though peduncle elongate, flattened, lanceolate, 1-articulate. Telson weakly incised, not longer than peduncle of uropod 3.

List of genera. *Dikwa* Griffiths, 1974.

Dikwa Griffiths, 1974

Type species. *Dikwa acrania* Griffiths, 1974

Diagnosis (modified after Barnard & Karaman, 1991). Body covered posteriorly with teeth or processes. Antenna 1 peduncular articles 1-2 subequal. Mouthparts projecting conically. Upper lip incised, very broad. Mandibular incisor narrow, almost needle-like; raker row long; molar broad and blunt, strong, triturative. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 ordinary. Maxilliped inner plate narrower, but as long as outer plate, latter ordinary; palp article 2 narrow and apicomediaally unproduced; palp article 4 well developed but short. Gnathopods diverse, of different elongations, propodus and dactylus elongate, narrow; gnathopod 1 chelate, gnathopod 2 simple. Coxa 2 short; coxae 1, 3, 4 progressively longer; coxa 4 long, nonocuspitate. Basis 7 with very long, pointed postermarginal cusp. Telson emarginate.

Diwka andresi Lörz & Coleman, 2003

(Fig. 12a-c, Map 5: square)

References and synonymy. De Broyer *et al.* 2007: 38.

Diagnosis. Cuticle covered with scale-like microtrichs. Head telescoped into the first pereonite, directed ventrally; eyes absent. Pereonites and pleonites in lateral view with wide, blunt dorsal processes, apart from pereonite 1 with weak depression. Epimeral plate 1 pointed ventrally, epimeral plate 2 posteroventrally angular and plate 3 posteroventrally rounded. Antenna 1 peduncular article 1 distal margin drawn

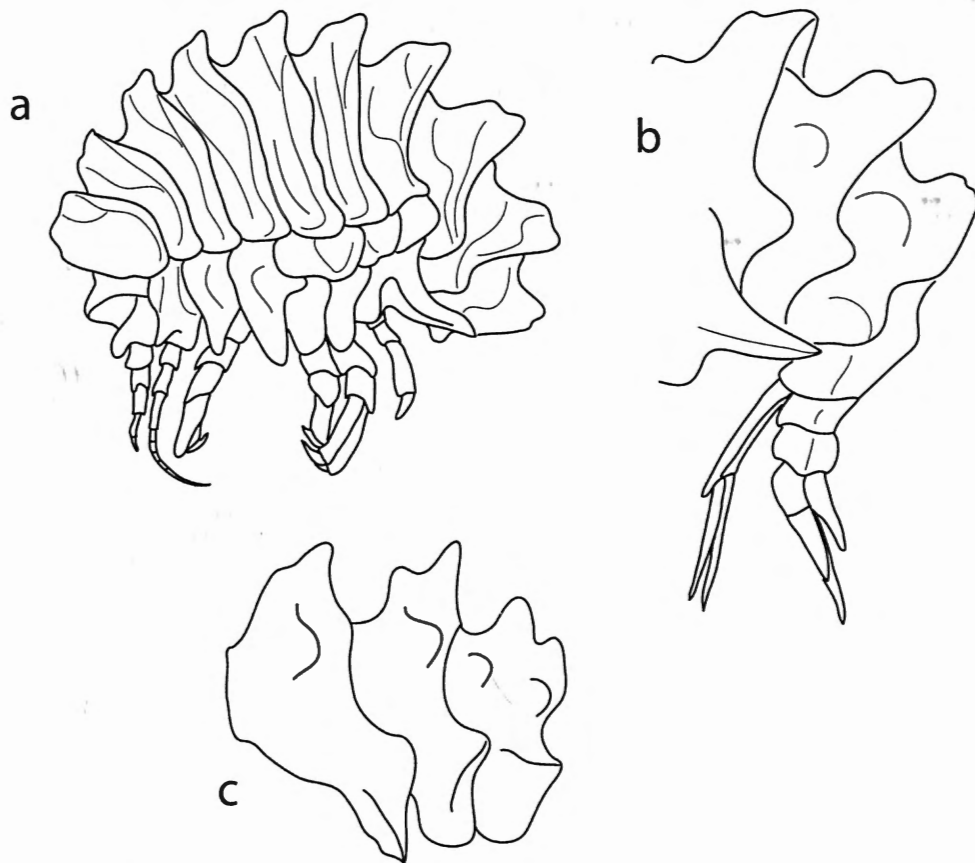


Fig. 12a-c. *Dikwa andresi*, redrawn after Lörz & Coleman, 2003. a) left body side without urosome; b) pleonites 1-3 and urosome; c) pleonites 1-3.

out into rounded projection reaching distal margin of article 2; article 3 longer than second, with scale-like accessory flagellum. Upper lip wider than long, incised. Mandible incisor strongly dentate; raker spines present; molar produced and triturative; palp 3-articulate. Lower lip with wide lobes. Maxilla 1 palp 2-articulate, surpassing outer lobe. Maxilliped palp 4-articulate; article 1 distally slightly expanded; article 4 small. Gnathopod 1 slender; coxa twice as long as coxa 2, produced laterally, complexly sculptured, bearing two apical tips; propodus more than twice the length of carpus; chelate, dactylus longer than fixed finger. Gnathopod 2 slender, longer than gnathopod 1; simple; propodus and dactylus extremely elongated, tapering. Coxa 3 tapering distally, dorsoventrally ridged. Coxa 4 with ridges on lateral face, posteriorly concave, apex drawn out into pointed process, posteroproximomarginally with rounded lobe. Pereopod 5-6 coxae wider than long, complexly sculptured; bases anterior and posterior margins parallel, posterior margin with ventrodistally rounded lobe. Pereopod 7 basis with extremely elongate pointed lobe, curved posteriorly. Uropod 1 peduncle same length as outer ramus; rami narrow-lanceolate; subequal in length. Uropod 2 rami and peduncle subequal in length; rami narrow-lanceolate. Uropod 3 peduncle less than half the length of rami; outer ramus slightly shorter than inner. Telson longer than wide, emarginate to rounded.

Size. 5-7.3 mm.

Remarks. *Dikwa andresi* is the only species of the family in the Antarctic. It can be determined by the flagellar gnathopod 2 and the conspicuous

pointed posteromarginal lobe on basis 7.

Type locality. West of Falkland Islands: 54°30.22'S-54°29.64'S 56°8.2'W-56°8.13'W, 54°1.36'S-54°1.11'S 62°1.3'W-62°1.63'W.

Distribution. Only known from type locality.

Depth range. 272-290 m.

EPIMERIIDAE Boeck, 1871b

Diagnosis (after Coleman & Barnard, 1991b). Body compressed, with dorsal teeth sometimes confined to metasome or urosome, and sometimes weak (*Epimeriella*). Rostrum well developed. Antennae elongate, flagella with 5+ articles; accessory flagellum 0-1 articulate. Mouthpart field quadrately developed (box-like). Epistome and upper lip broad, short, incised or entire. Incisor of mandible ordinary, toothed; setal row strong; molar large and triturative or reduced, conical and pubescent (*Epimeriella* and *Epimeria victoria* Hurley, 1957); palp always present, 3-articulate. Lower lip without inner lobes, without distinct inner notches. Inner plate maxilla 1 ordinary, medially setose (except *Uschakovella*); outer plate oblique, normally spinose; palp large, 2-articulate. Inner plate of maxilla 2 without facial setae. Palp of maxilliped 3-4 articulate, article 2 not produced medially. Coxae 1-4 acuminate, ventral margins fitting normal ventral parabolic curve of anterior coxae; coxae 1 and 4 not shortened, coxa 4 with large posteroventral lobe, coxa

5 at least slightly shorter than 4. Gnathopods feeble and with elongate carpus and propodus, but not flagellar, gnathopod 2 usually slightly longer than gnathopod 1; both gnathopods subchelate, or simple, merus and carpus not produced. Article 2 of pereopods 5-7 often with posterior cusps or teeth. Epimeral plate 3 lacking 2 large cusps (though occasional species with very small epimeral bicuspidation), occasionally body or coxae with surficial cusps or rarely articulate spines (*Uschakoviella*). Urosomites free. Uropods 1-3 biramous.

Rami of uropod 3 longer than peduncle, flattened, lanceolate. Telson entire or weakly incised.

List of genera. *Paramphithoe* Bruzelius, 1859 (= *Acanthosoma* Ross, 1835, homonym, Hemiptera) (= type genus); *Actinacanthus* Stebbing, 1888; *Epimeria* Costa, 1851 (= *Pseudepimeria* Chevreux 1912a = *Subepimeria* Bellan-Santini, 1972a); *Epimeriella* Walker, 1906, 1907; *Metepimeria* Schellenberg, 1931a; *Uschakoviella* Gurjanova, 1955b.

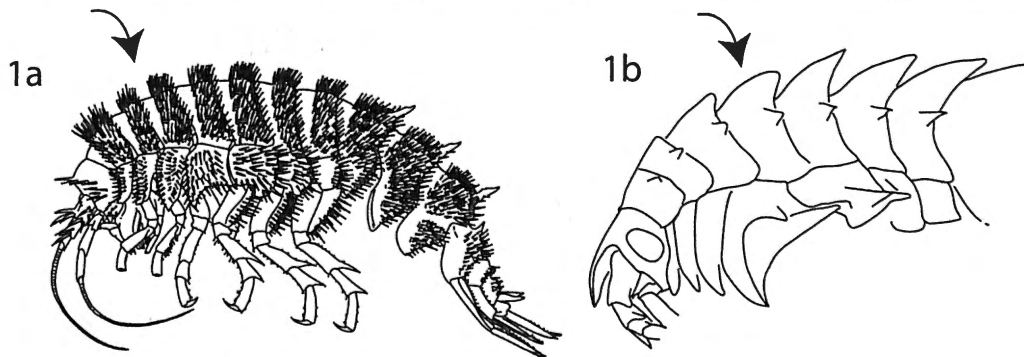
Key to the Antarctic genera of the Epimeriidae

1a. Densely covered with articulated spines

Uschakoviella

1b. Body smooth or with carinae

2

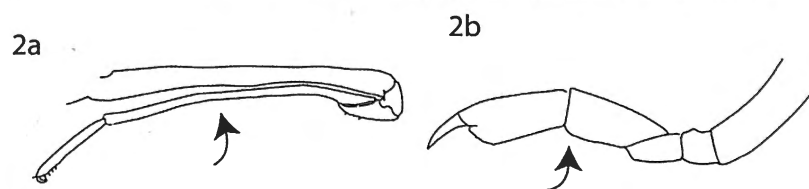


2a. Carpus and propodus of gnathopod 2 elongate and very slender, no palm

Actinacanthus

2b. Carpi and propodi of gnathopods subequal, palm present

3

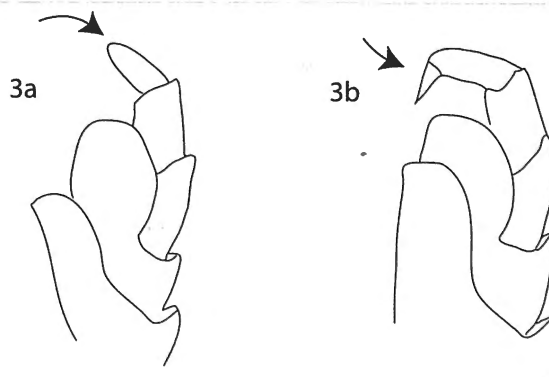


3a. Maxilliped palp 3-articulate

Metepimeria

3b. Maxilliped palp 4-articulate

4



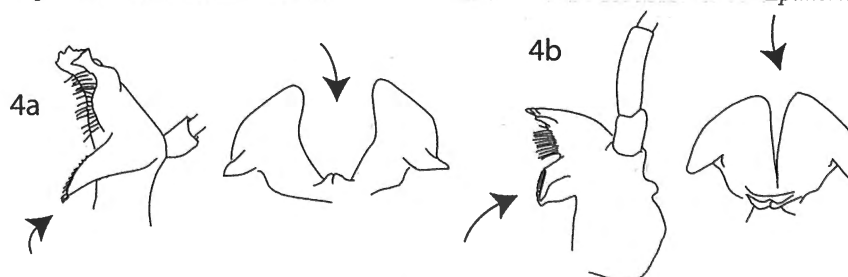
4a. Pars molaris drawn out, without triturative surface.

Lower lip with wide hypopharyngeal gap

4b. Pars molaris normal, triturative. Lower lip normal

Epimeriella

Epimeria



Actinacanthus Stebbing, 1888

Type species. *Acanthozone tricarinata* Stebbing, 1883

Diagnosis (emended after Barnard & Karaman, 1991). Body covered with teeth or processes. Antenna 1 peduncular article 1-2 subequal. Mouthparts projecting in quadrate bundle. Upper lip incised; it and epistome not very broad. Mandibular incisor ordinary; spine row present, toothed; molar broad and blunt, tritulative. Lower lip inner lobes absent, outer lobes broad. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate shorter and narrower than outer plate, latter elongate; palp article 2 narrow and apicomediaally unproduced; palp article 4 well developed, unguiform. Coxae 1-4 progressively longer; coxa 4 long, polycuspidate. Gnathopods alike, carpus and propodus elongate, narrow; both gnathopods scarcely subchelate. Telson entire.

Actinacanthus tricarinatus (Stebbing, 1883)

(Fig. 13, Map 5: triangle)

References and synonymy. De Broyer *et al.* 2007: 39.

Diagnosis. Head small with short rostrum. Pereon with long slender serrate dorsal carinae, that on pereonite 1 bifurcate, and additional carinae on each of the lateral tergite faces. Pleosomites with mid-dorsal carinae and small dorsolateral teeth on both sides; pleon segment 2 posteromarginally roundly produced and posteroventral corner with 2 pointed processes; pleon segment 3 additionally to the mid-dorsal

carina with 2 short teeth on the posterior margin accompanied by dorsolateral serrate tooth, posterior margin with long, serrate tooth curved dorsally, posteroventral corner roundly angular. Urosomite 1 longest, with 2 subsequent mid-dorsal serrate carinae, urosomite 2 subequal in length to segment 3, without dorsal armature; urosomite 3 with mid-dorsal carina and 2 posteromarginal teeth. Antenna 1 peduncular article 1 with 3 long slender teeth; article 2 with 2 long distal teeth, longer than article 3; article 3 shortest; flagellum article 1 elongate, as long as peduncular article 1. Antenna 2 peduncular article 2-4 with 2 distal teeth each; article 5 longest; flagellar article 1 elongate. Upper lip incised. Mandible with dentate incisor and triturating molar; palp 3-articulate, distal article longest. Lower lip with narrow medial gap. Maxilla 1 ordinary, palp 2-articulate. Maxilla 2 without facial setae. Maxilliped palp article 2 not produced medially. Gnathopod 1 coxa pointed distally, carpus and propodus elongate and slender, subequal in length; oblique narrow palm, dactylus multipectinate. Gnathopod 2 coxa anteromarginally excavate, distally pointed; carpus extremely elongate, about 3x as long as propodus. Coxa 4 pointed distally, with serrate process strongly curved posteriorly. Coxae 5-7 subrectangular with similar process on lateral face as on pereopod 4, successively longer. Pereopods 5-7 merus and carpus acutely drawn out posterodistally. Uropods 1-2 with subequal rami. Uropod 3 with subequal, lanceolate rami. Telson slightly longer than wide, entire.

Size. 16 mm.

Remarks. Unique within the Epimeriidae.

Type locality. Heard Island: 52°04'S 71°22'E.

Distribution. Only known from type locality.

Depth range. 270 m.

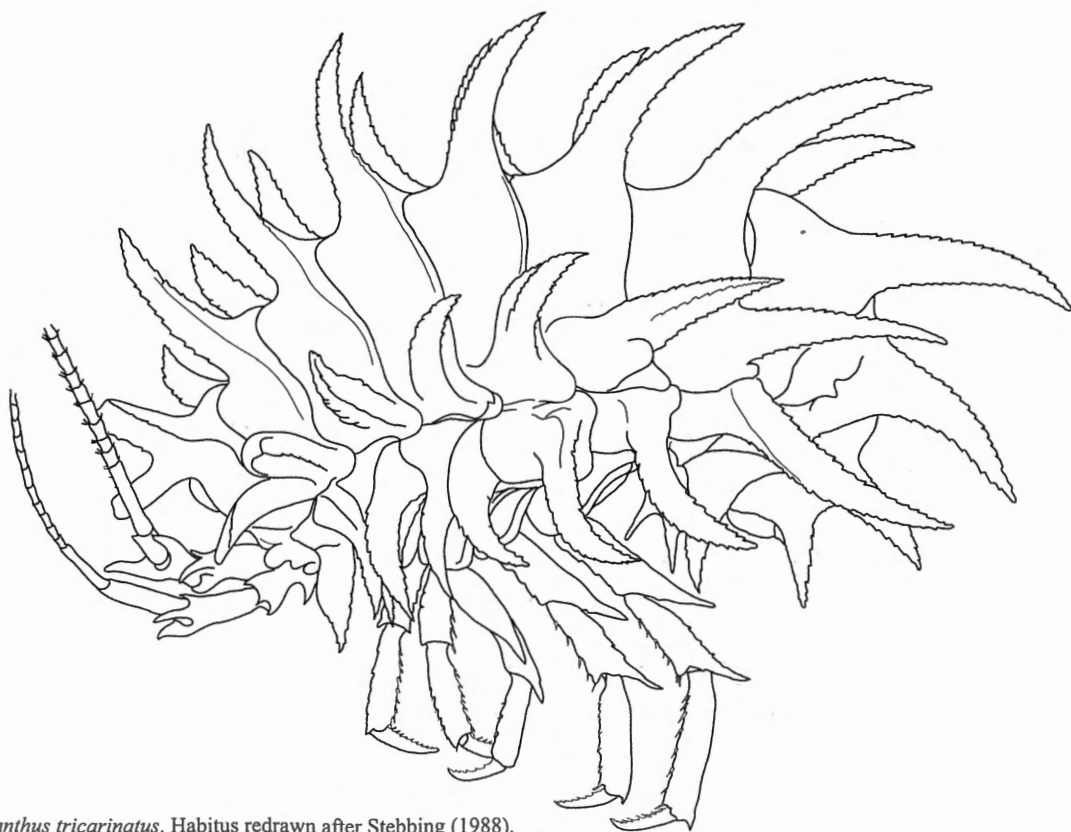


Fig. 13. *Actinacanthus tricarinatus*. Habitus redrawn after Stebbing (1988).

***Epimeria* Costa, 1851**

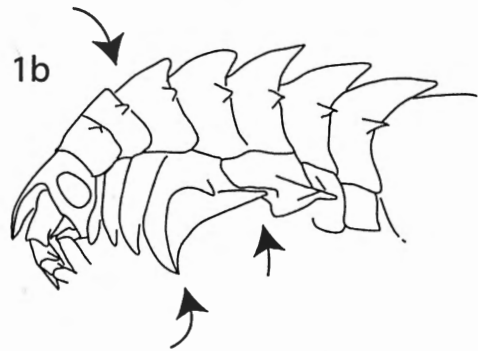
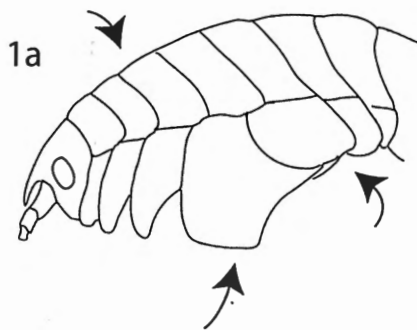
Type-species. *Epimeria tricristata* Costa, 1851 (= *Gammarus cornigera* Fabricius, 1779)

Diagnosis (after Barnard & Karaman, 1991). Body covered with teeth or processes. Antenna 1 peduncular article 2 shorter than 1. Accessory flagellum present or absent. Mouthparts projecting quadrately. Upper lip almost entire; epistome not very broad. Mandibular incisor ordinary, toothed, setal row present; molar blunt, strong, triturative. Lower lip inner

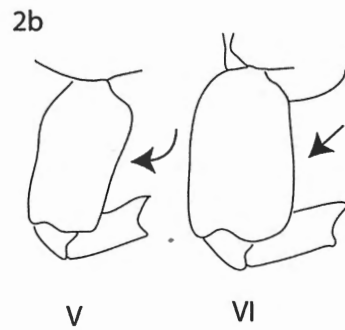
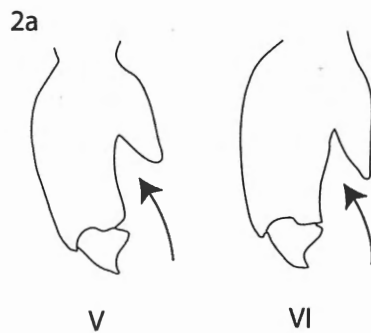
lobes absent, outer lobes relatively broad. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate narrower but as long as outer plate, latter elongate; palp article 2 narrow and apicomediaally unproduced; palp article 4 well developed, unguiform. Coxae 1-4 progressively longer; coxae 4-5 forming ventral arc; coxa 4 long, polycuspidate. Gnathopods alike, articles 5-6 elongate, simple or subchelate (typical). Telson incised or cleft.

Key to the Antarctic species of *Epimeria*

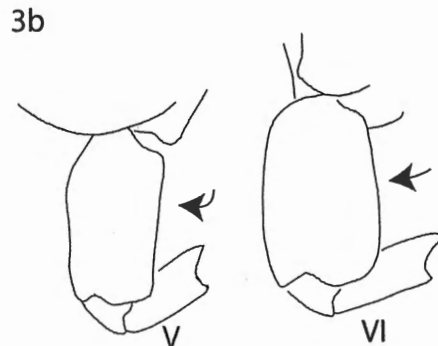
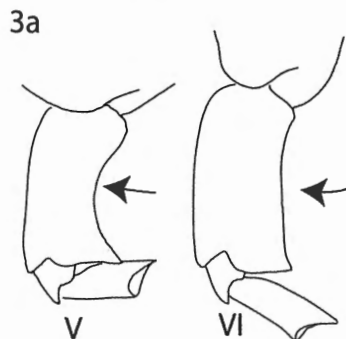
- 1a. All pereonites lacking mid-dorsal carinae. Coxa 4 ventrally broad or slightly convex. Coxa 5 not acutely produced posterodistally 2
 1b. Some or all pereonites bearing mid-dorsal carinae. Coxa 4 ventrally broad or narrow, blunt or pointed. Coxa 5 posterodistally produced or not 6



- 2a. Bases 5 and 6 posteriorly notched *Epimeria robusta*
 2b. Bases 5 and 6 posteriorly entire 3



- 3a. Bases 5 and 6 posteriorly concave. Mid-dorsal carinae present on pleonites 2-3 *Epimeria puncticulata*
 3b. Bases 5 and 6 posteriorly straight or convex, not excavate. Posterodorsal projection on pleonite 3 4

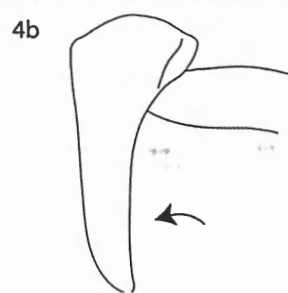
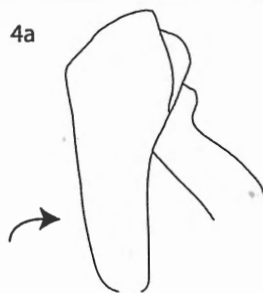


4a. Coxa 1 anterior and posterior margins of distal half parallel, apically rounded

Epimeria monodon

4b. Coxa 1 tapering distally, pointed apically

5

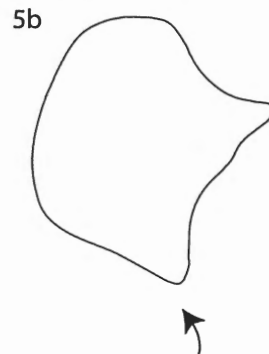
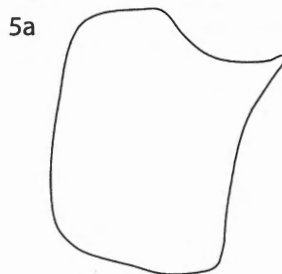


5a. Coxa 4 subquadrate

Epimeria extensa

5b. Coxa 4 posterodistal angle produced and curved medially

Epimeria annabellae

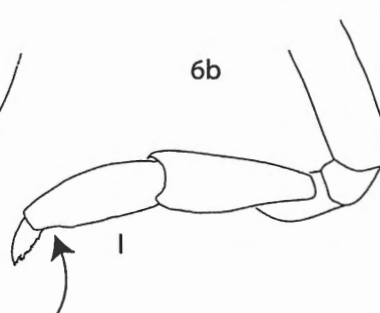
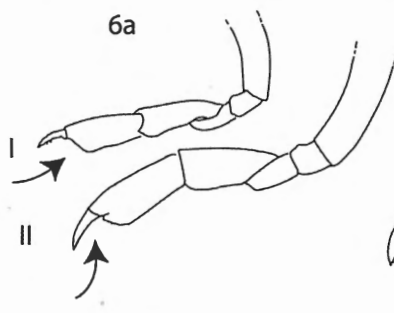


6a(1). Gnathopods 1-2 with distinct, occasionally short, palm, dactyl slender weakly pectinate

7

6b. Gnathopods 1-2 without palm, dactyl stout, sometimes strongly pectinate

16

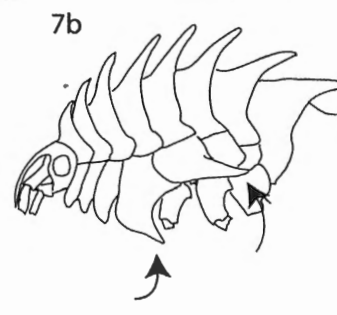
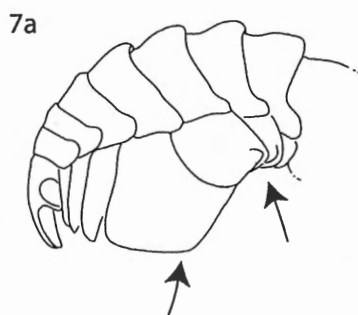


7a. Coxa 4 ventrally broadened, truncate or sometimes excavate, not forming constantly curved anterior margin..

8

7b. Coxa 4 ventrally tapering into pointed apex, forming constantly curved anterior margin

12

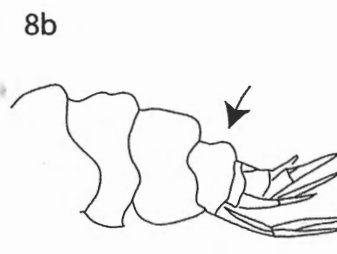
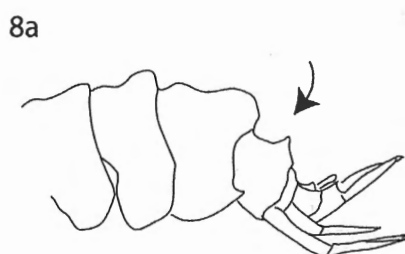


8a. Urosomite 1 with pointed tooth

Epimeria intermedia

8b. Urosomite 1 with rounded hump

9

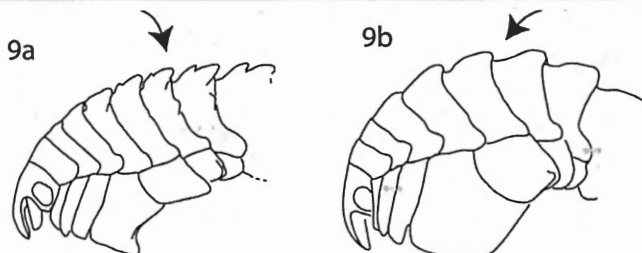


9a. Mid-dorsal carinae on pereonites 3-7, clearly bilobed on pereonites 5-7

Epimeria rimicarinata

9b. Mid-dorsal carinae on pereonites blunt, not bilobed

10

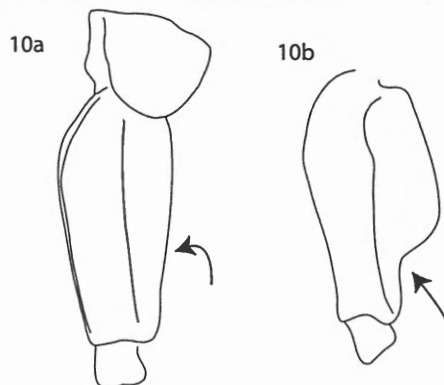


10a. Basis 7 slender with straight posterior margin

Epimeria heldi

10b. Basis 7 excavate posteriorly

11

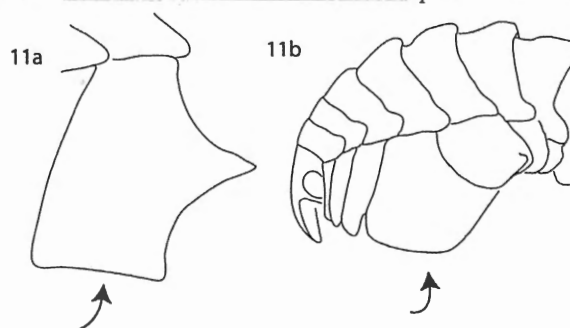


11a. Lateral face of coxa 4 sculptured, distal margin not curved below ventral side

Epimeria georgiana

11b. Lateral face of coxa 4 smooth, distal margin curved below ventral side

Epimeria inermis

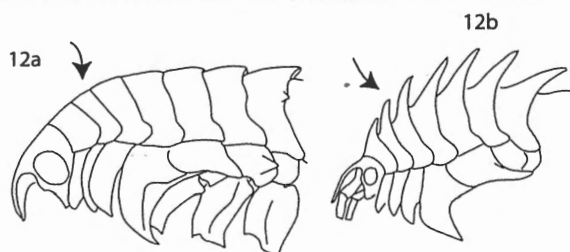


12a(7). Pereonites 1-4 dorsally smooth

13

12b. Dorsal carinae starting on pereonites 1 or 2

14

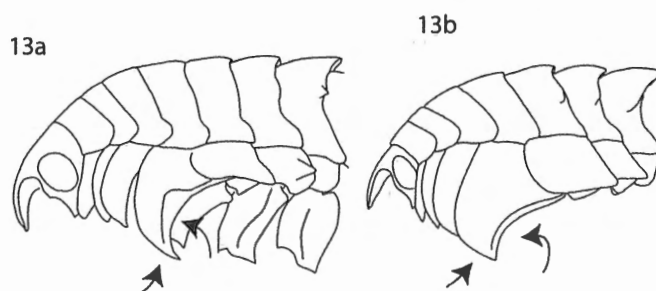


13a. Coxa 4 apex deeply excavate posteromarginally, apex acutely pointed and curved posteriorly

Epimeria reoproii

13b. Coxa 4 moderately excavate posteromarginally, apex angular

Epimeria vaderi

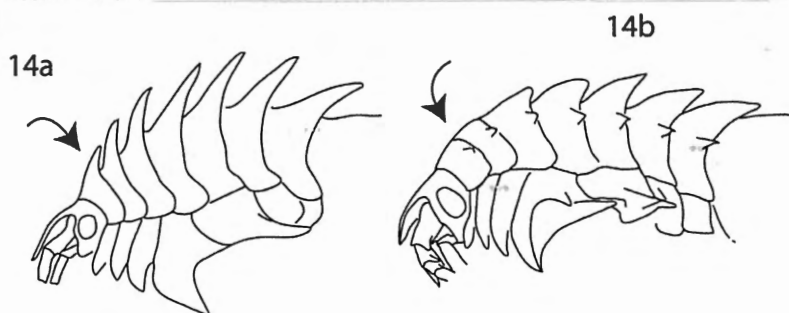


14a(12). Mid-dorsal acute dorsal processes on all pereonites

Epimeria rubriques

14b. Mid-dorsal processes present except for pereonites 1 or 2

15



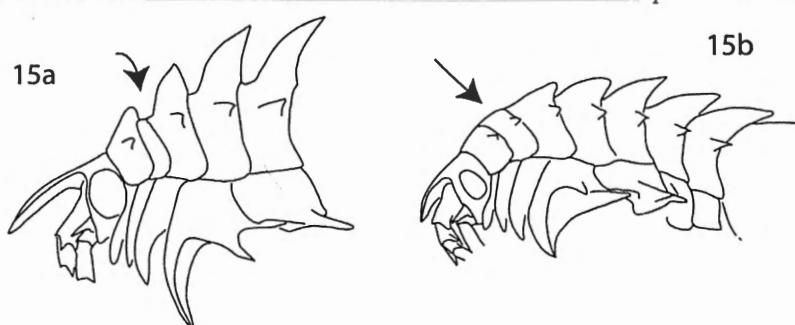
15a. Mid-dorsal and midlateral teeth absent only on pereonite 2, occasionally weak on pereonite 1. Pereonite 2 shortened

Epimeria macrodonta

15b. Mid-dorsal tooth absent on pereonite 1, weak or absent on pereonite 2.

Midlateral teeth present on all pereonites, pereonite 2 normal

Epimeria similis

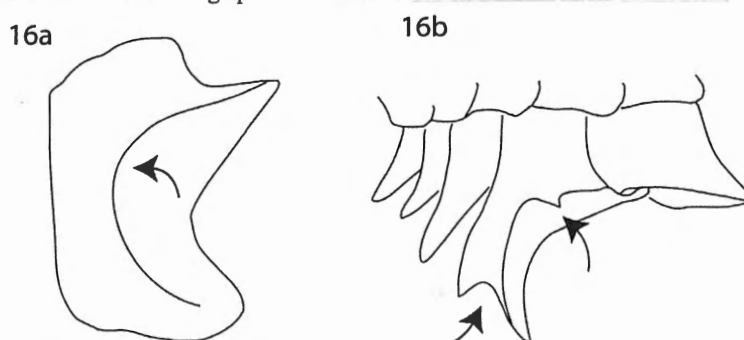


16a(6). Coxa 4 with distal margin straight, surface dorsoventral ridge not produced in tooth

Epimeria grandirostris

16b. Coxa 4 with distal margin deeply excavate, surface dorsoventral ridge produced in tooth

17



17a. Mid-dorsal carina of pereonite 1 curved forwards, three times longer than that of pereonite 2.

Lateral armature of pereonites consisting of acute teeth.

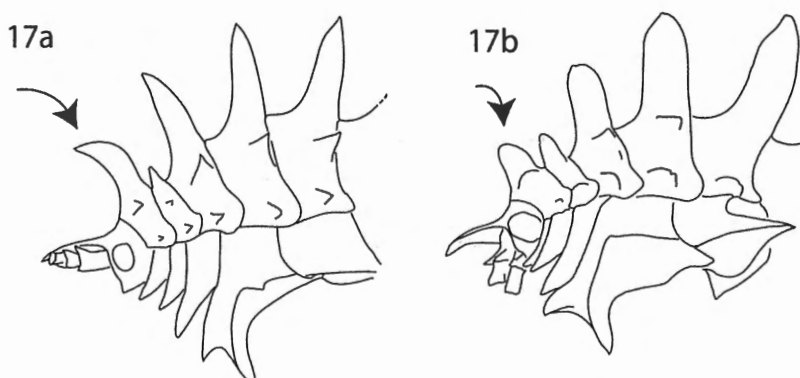
Coxa 5 posterolateral wing shorter than half the width of pereonite 5

Epimeria oxycarinata

17b. Mid-dorsal carina of pereonite 1 straight, slightly longer than that of pereonite 2.

Lateral armature of pereonites consisting of tubercles. Coxa 5 very strongly protruding laterally, wing longer (1.5 times) than half the width of pereonite 5

Epimeria pulchra



***Epimeria annabellae* Coleman, 1994**

(Fig. 14a-b, Colour plate 1h, Map 6: rhomb)

References and synonymy. De Broyer *et al.* 2007: 39.

Diagnosis. Head with large oval eyes. Pleonite 3 with mid-dorsal keel, drawn out into a posterior process. Urosomite 1 with pointed tooth. Coxa 1 slightly concave anteriorly. Gnathopods 1-2 propodus slightly expanded distally, palm oblique, serrate. Coxae 2-3 convex anteriorly and excavate posteriorly. Coxae 1-3 acuminate. Coxa 4 largest, overlapping preceding coxae, posterodistal angle strongly drawn out and directing ventrally, and curved medially below the ventral side. Basis 5 posterior margin somewhat sinuous. Basis 6

slender. Basis 7 widened with distal pointed process.

Size. Female 18-22 mm.

Remarks. *Epimeria annabellae* resembles *E. extensa* Andres, 1985, but is distinguished by the large eye (vs. normal size), anterior margin of coxa 1 somewhat excavate (vs. straight), coxa of pereopod 4 with produced posterodistal corner (vs. right-angled corner), strongly developed postero-marginal tooth and keel on pleonite 3 (vs. no keel and only small blunt hump), pointed tooth on urosomite 1 (vs. rounded hump), posterior margin of basis 5 somewhat sinuous (vs. straight) and distal margin of basis 7 pointed (vs. rounded).

Type locality. Weddell Sea: 72° 30.35'S 17° 29.88'W.

Distribution. Weddell Sea; eastern shelf.

Depth range. 240-264 m.

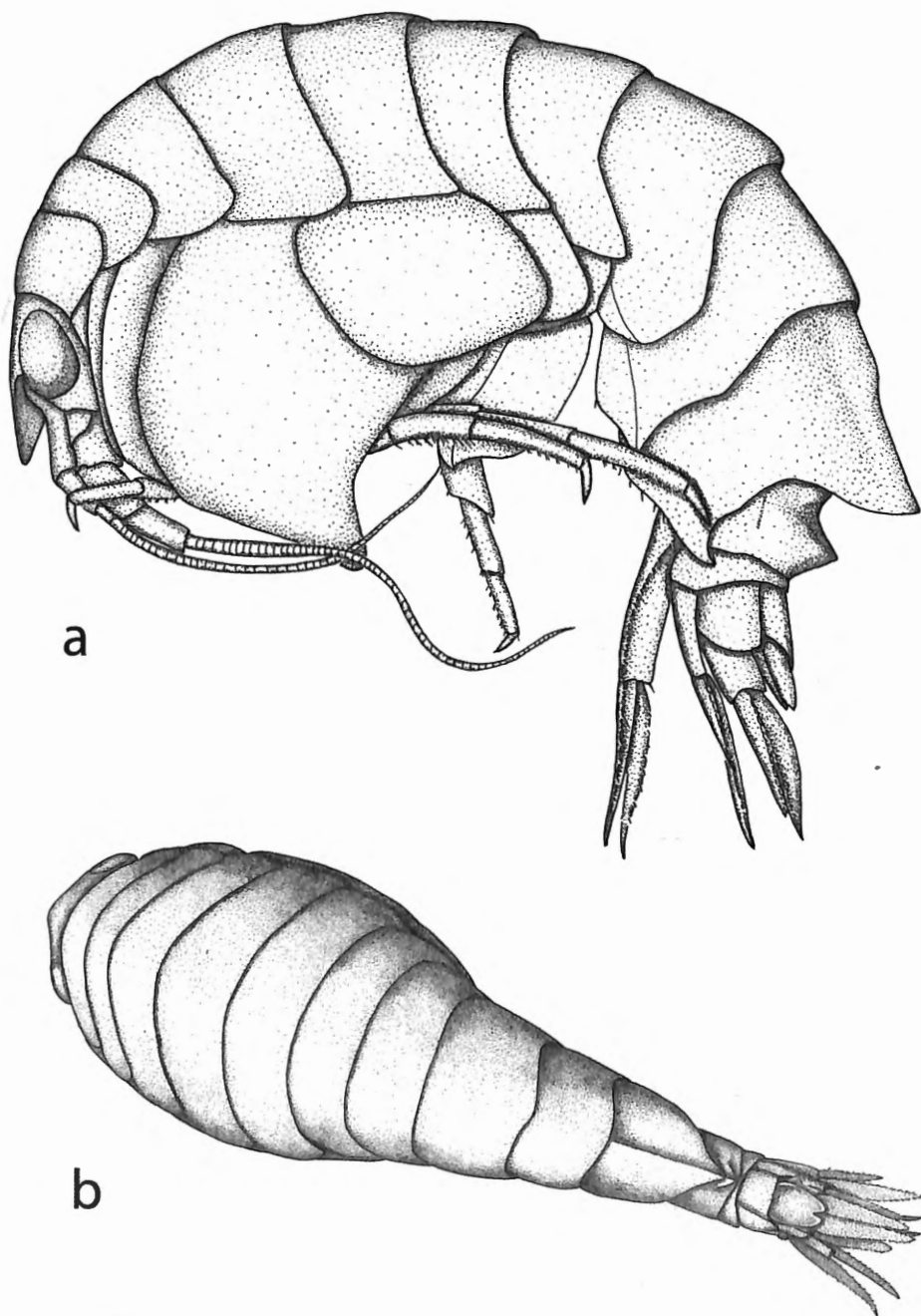


Fig. 14a-b. *Epimeria annabellae*. a) left body side; b) dorsal habitus.

Epimeria extensa Andres, 1985

(Fig. 15a-f, Map 6: circle)

References and synonymy. De Broyer *et al.* 2007: 39.

Diagnosis. Rostrum longer than peduncular article of antenna 1; eye normal; lateral cephalic lobe small and pointed. Pereonites and pleonites 1-2 smooth, pleonite 3 with posterodorsal mid-dorsal blunt process. Urosomite 1 dorsally depress with rounded dorsal hump. Urosomite 3 dorsolateral ridged. Coxae 1-3 tapering distally, apically rounded, anteromarginally slightly convex, posteromarginally concave. Coxa 4 subquadrate, anteroventrally and posteroventrally rounded. Gnathopods 1-2 subchelate with a serrate, oblique palm. Pereopods 5-6 longer than 7. Coxa 5 rhomboid, ventrally rounded, basis straight, distally with small medial lobe. Coxa 6 wider than long and posteromarginally rounded, basis 6 posteromarginally slightly convex, with broader distal lobe. Pereopod 7 coxa smallest, rounded ventrally, basis with lobe longer than ischium, posteromarginally convex, but posterodistal margin slightly concave. Merus of pereopods

5-7 with drawn out, pointed posterodistal corner. Epimeral plate 1 ventrally rounded, epimeral plates 2-3 posteroventral angle produced and pointed. Telson notched 1/5 to 1/4, apices smooth, not notched.

Size. Male 11 mm.

Remarks. *Epimeria extensa* is very similar to *E. monodon*, both having a posterodorsal blunt hump on pleonite 3. However, *E. monodon* has coxa 1 with parallel margins and rounded apex (vs. convex anterior and concave posterior margins and pointed tip), bases 5-7 wider, basis 7 with broad distal lobe (vs. tapering lobe, with weak posteromarginal distal excavation). The telson of *E. extensa* has smooth apices whereas that of *E. monodon* has small notches. Another species with smooth pereonites and pleonites 1-2 is *E. annabellae*. This species is easily distinguished from *E. extensa* by its dorsal keel running into an acute process on pleonite 3 and the enlarged coxa 4.

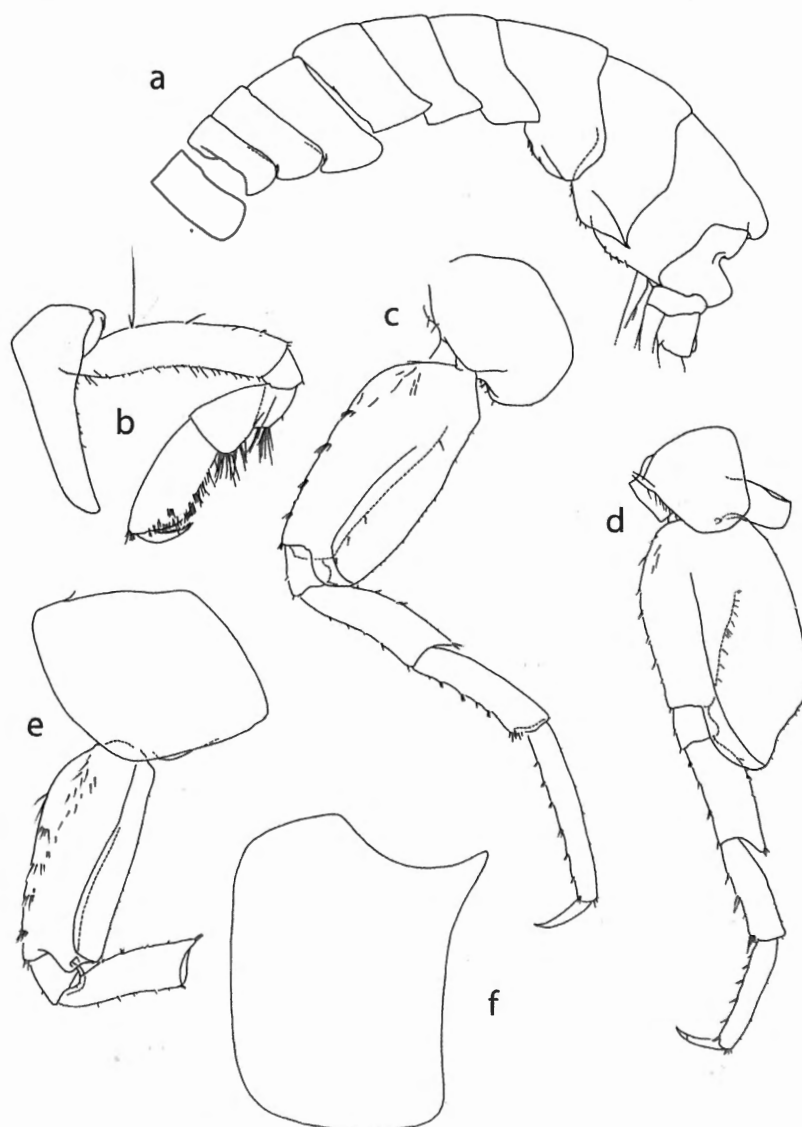
Type locality. Antarctic Peninsula: 64°06'S 55°06'W.**Distribution.** Only known from type locality.**Depth range.** 230-260 m.

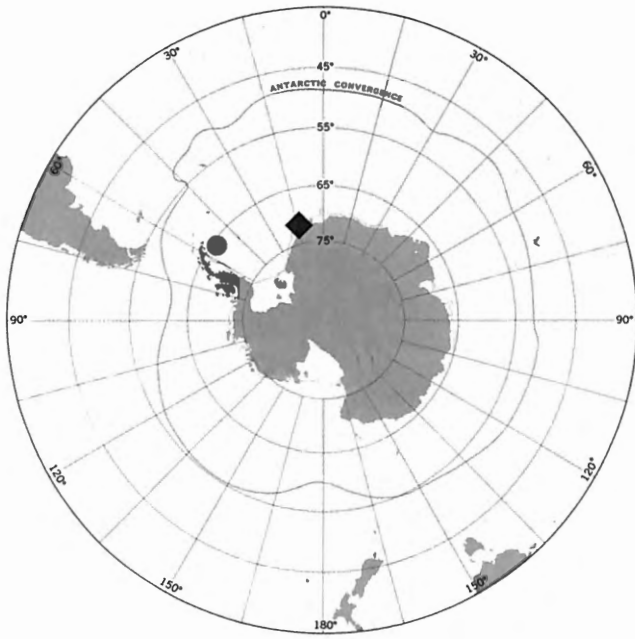
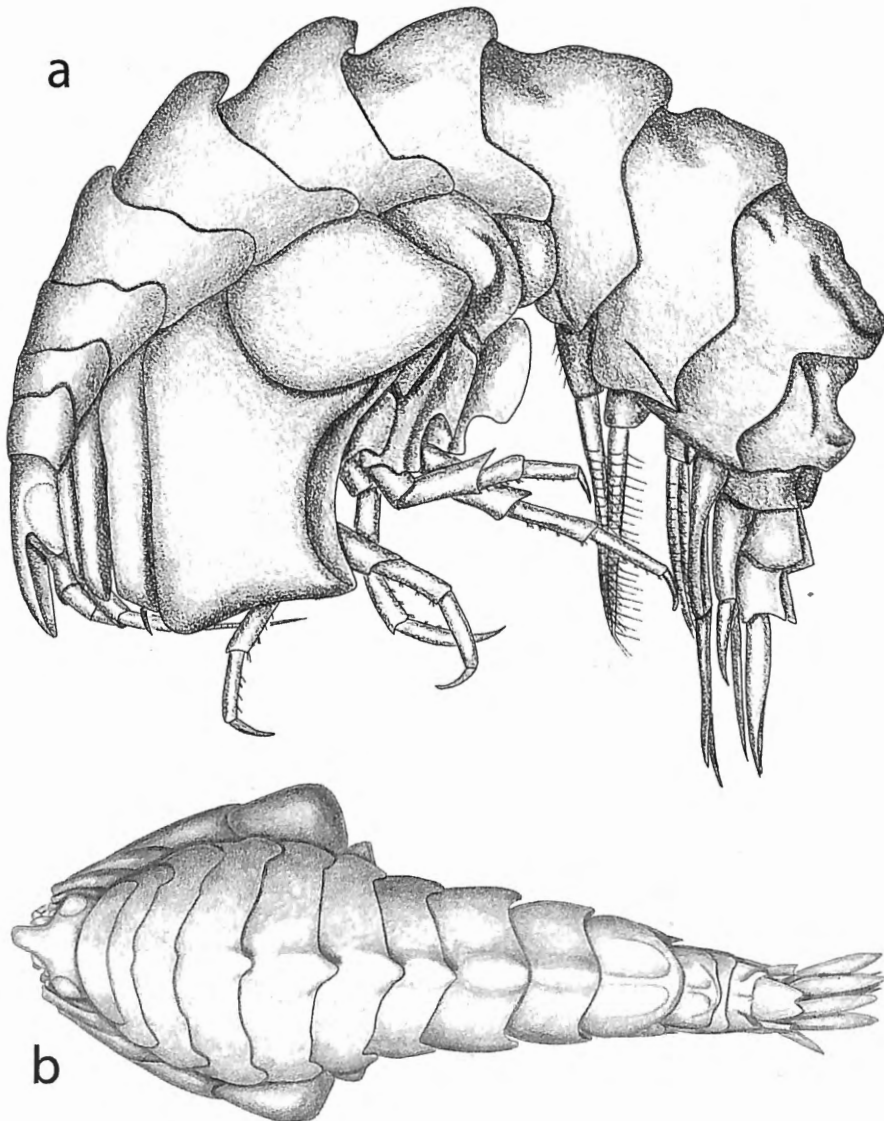
Fig. 15a-f. *Epimeria extensa*, redrawn after Andres, 1983. a) lateral view of tergites of pereon, pleon and urosome; b) gnathopod 1; c) pereopod 6; d) pereopod 7; e) pereopod 5; f) coxa 4.

Epimeria georgiana Schellenberg, 1931a

(Fig. 16a-b, Map 7: rhomb)

References and synonymy. De Broyer *et al.* 2007: 39.

Diagnosis. Body robust. Rostrum longer than first peduncular article of antenna 1, eyes large, ocular lobe rounded, lateral cephalic lobe produced and rounded. Pereonites 2-3 with short, dorsal posteromarginal protrusions, not carinate. Pereonites 4-7 with broad, blunt carinae, and less posteriorly protruding humps on pleonites 1-2, pleonite 3 and urosomite 1 sculptured by dorsolateral and medial irregular ridges and humps, pleonite 3 with 2 shallow dorsal depressions. Urosomite 1 with dorsal depression, urosomite 3 with dorsolateral ridges and a shallow dorsal keel drawn out into a small pointed posteromarginal tooth. Epimera on pleonites lateromarginally rounded, posteroventral angle produced, pointed on pleonites 2 and 3. Coxae 1-3 with ridged surface, coxa 1 apically rounded, coxa 2 with posteroapical angle, gnathopods subchelate, palm inconspicuously serrate, dactyls with short spines on inner curvature. Coxa 3 truncate. Coxa 4 largest, sculptured, apically truncate or weakly excavate,

Map 6. *Epimeria annabellae*: rhomb; *Epimeria extensa*: circle.Fig. 16a-b. *Epimeria georgiana*. a) left lateral view; b) dorsal habitus.

posterior and apical margin turned back, creating a rounded ridge, narrow pointed posteromarginal lobe, which is partly enveloped by coxa 5. Coxa 5 laterally produced. Coxa 6 rounded posteriorly with produced hump on lateral surface. Bases 5-7 ridged, with deep notches on posterior margin, creating prominent teeth.

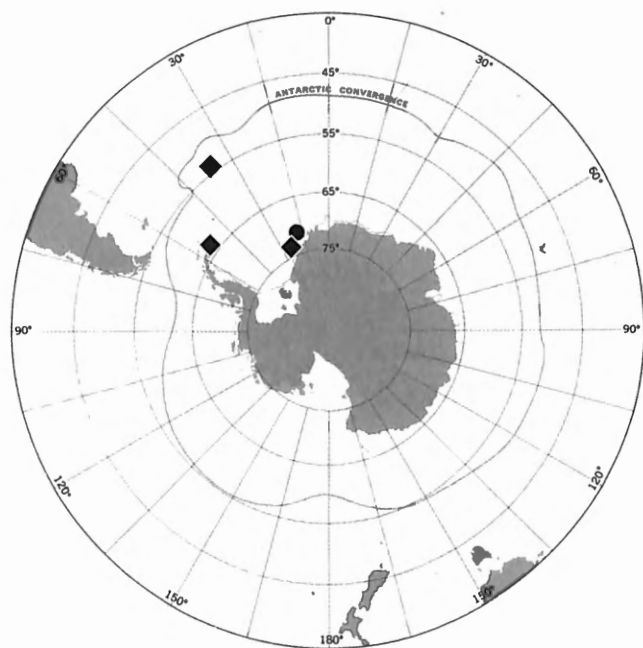
Size. Female 34-39 mm, male 10-21 mm.

Remarks. *Epimeria georgiana* is very similar to *E. rimicarinata* and *E. inermis*. *Epimeria georgiana* has the lateral face of coxa 4 sculptured, posterodistal and apical margins concave, the distal margin of coxa 4 is not curved around the ventral body side; and bases 5-7 notched posteromarginally, whereas in *E. inermis* coxa 4 is smooth, shield-like curved, with a somewhat convex ventral margin and a straight posterodistal margin, slightly curved under the ventral body side. Bases 5-7 are excavate, but not notched. *E. rimicarinata* has similarly shaped coxae as *E. georgiana*, however, the dorsal carinae are bilobed from lateral view, there are additional dorsolateral teeth on pereonites 5-7 and rounded humps on pleonites 1-3; basis 5 is not notched, basis 6 with a posteromarginal tooth, but this is directing posteriorly and not ventrally as in *E. georgiana*.

Type locality. South Georgia: Cumberland Bay: 54°11'S 36°18'W.

Distribution. South Georgia; Bransfield Strait; Palmer Archipelago; South Shetland Islands; Weddell Sea; eastern shelf.

Depth range. 75-928 m.



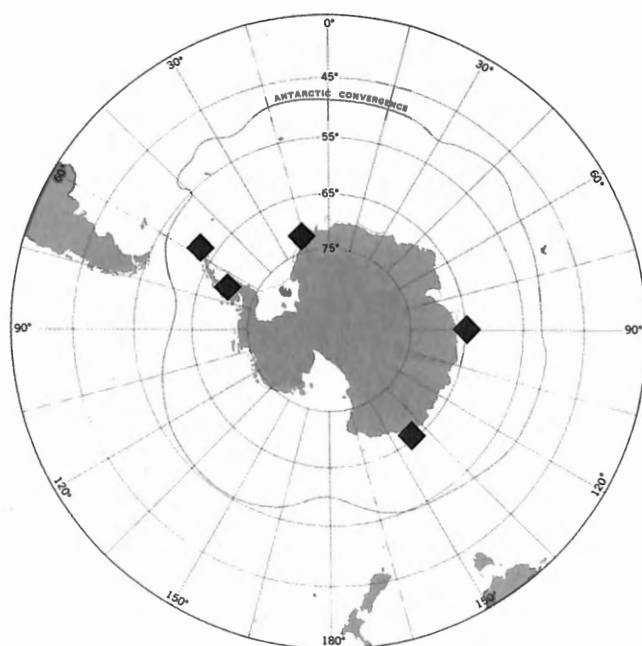
Map 7. *Epimeria georgiana*: rhomb; *Epimeria rubriques*: circle.

Epimeria grandirostris (Chevreux, 1912a)

(Fig. 17a-b, Colour plate 2b, Map 8: rhomb)

References and synonymy. De Broyer *et al.* 2007: 40.

Diagnosis. Body slender, pereon not conspicuously broadened. Head small with straight, broad elongated rostrum, anteroventral corner acute, postantennal lobe pointed, eyes oval, prominent. Pereonite 2 shortest. Pereonite 3 longer than 1 and 2 together. Pereonites 4-7 subequal. All pereonites with apically blunt mid-dorsal carinae, increasing in size on caudal segments, shortest on pereonites 1-2; dorsal carinae with lateral ridges, which are in connection with dorsolateral blunt pegs; laterally blunt tubercles. On pereonites 2-7 ridges between dorsolateral and lateral pegs. Pleonite 3 longer than 1 and 2, with mid-dorsal carinae similar to those of pereonites, dorsal carina on pleonite 3 shortest. All 3 pleonites with lateral ridges descending in posterodistal corner; both sides of dorsal carinae regularly toothed. Urosomite 1 slightly longer than urosomites 2 and 3 together, with large median and 2 lateral teeth on both sides. Urosomite 2 smallest, with 1 median and 2 lateral teeth. Urosomite 3 with 1 small median tooth, on both sides 1 lateral tooth. Coxae overlapping to a great extent. Coxae 1-3 partially hidden by coxa 4, each dorsoventrally ridged, tapering ventrally to acute process. Gnathopods 1 and 2 without palm, dactylus strongly pectinate posteromarginally. Coxa 4 broad, excavate posteriorly, with posterobasal process, ridge descending from this process to posterodistal angle. Pereopod 5 coxa with rounded process posteriorly, 2 ridges flow into this process, basis slender with 2 processes posteromarginally, dorsoventral ridge on lateral surface. Pereopod 6 coxa subrectangular with 2 acute processes directed posteriorly, basis similar to pereopod 5, but shorter and wider. Pereopod 7 coxa rounded with posteriorly directed tooth, basis broad, posterior margin convex, distal



Map 8. *Epimeria grandirostris*: rhomb.

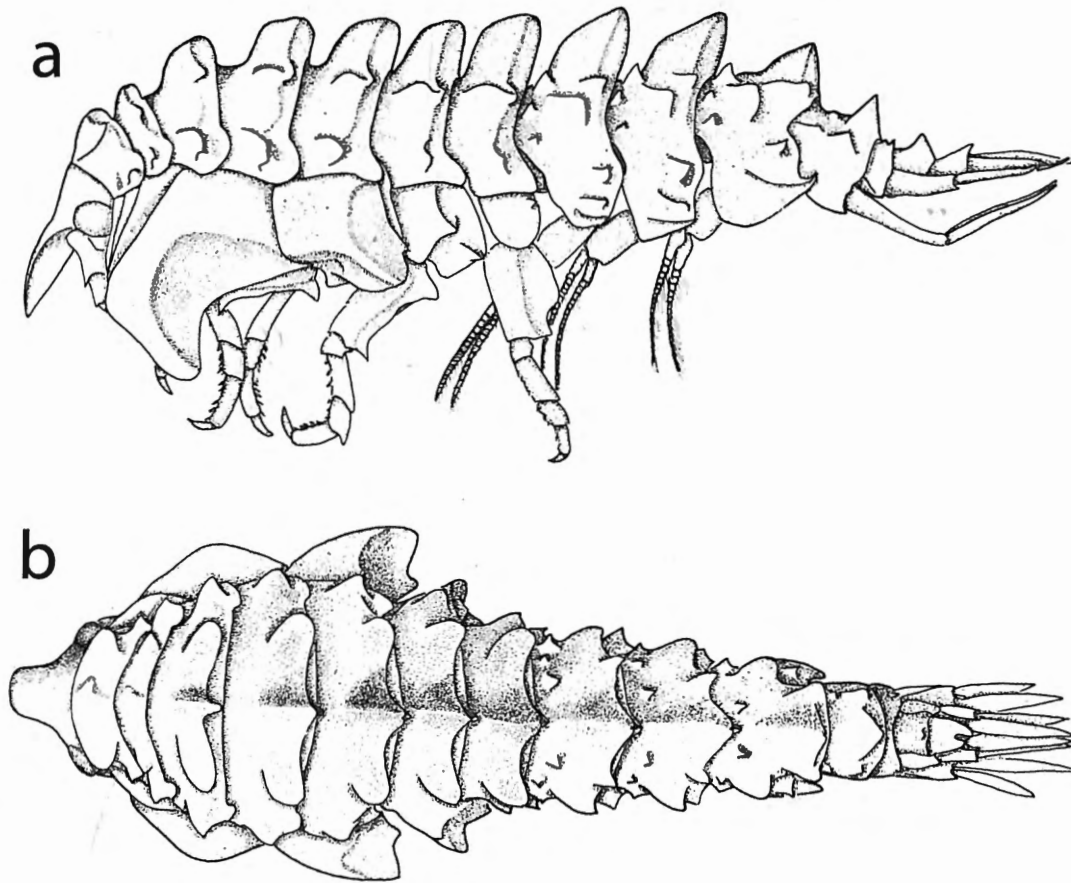


Fig. 17a-b. *Epimeria grandirostris*. a) left lateral view; b) dorsal view.

third excavate, lateral dorsoventral ridge. Telson notched nearly one half.

Size. Female 15-23 mm.

Remarks. *Epimeria grandirostris* is closely related to *E. oxycarinata* and *E. pulchra*. These species have the following in common: mid-dorsal carinae on pereonites, pleonites with lateral dorsoventral ridges, gnathopods without palm and strongly pectinate dactyli. However, *E. grandirostris* differs from these species in the shorter carinae, coxa 4 without tooth on lateral surface, weak excavation of the anterodistal margin, and less produced coxa 5.

Type locality. Marguerite Bay.

Distribution. Adélie Coast; Davis Sea; South Shetland Islands; Weddell Sea.

Depth range. 68-634 m.

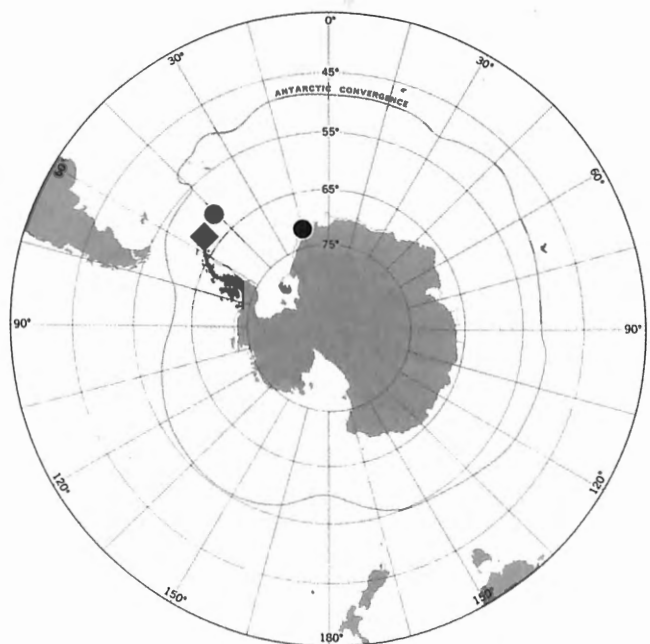
Epimeria heldi Coleman, 1998a

(Fig. 18a-b, Colour plate 1f, Map 9: rhomb)

References and synonymy. De Broyer *et al.* 2007: 40.

Diagnosis. Head with relatively long stout rostrum; eyes large, kidney-shaped; length of head (including rostrum) about that of pereonites 1-3 combined. Pereonites 4-7 increasing in length successively. A dorsal carina starts on pereonite 6 with a small hump, becomes clearly apparent on metasomal segments 1-3 with blunt, mid-dorsal processes, increasing in length to the posterior margin of the segments,

with shallow depression in lateral aspect. Epimeral plate 1 with posteromarginal rounded lobe; plate 2 with angular posteromarginal lobe; posteroventral region of epimera 1-2 not angular, but rounded, with ridges on lateral faces; epimeral plate 3 with weak lobe-like posteromarginal protrusion and pointed posteroventral angle. Urosomite 1 with a rounded



Map 9. *Epimeria heldi*: rhomb; *Epimeria pulchra*: circle.

keel-like mid-dorsal process, longer than urosomite 2-3 combined. Urosomite 3 with lateral posteriorly projecting lobes.

Antenna 1 article 1 with oblique distal margin, longer than article 2-3 combined; accessory flagellum uniarticulate, scale-like; flagellar articles with distal setae and aesthetascs. Antenna 2 article 4 and 5 subequal; flagellar articles with short setae. Gnathopod 1 coxa weakly tapering, with rounded apex; propodus narrower than carpus, subequal in length; dactylus with row of stout setae on posterior margin; palm narrow, with fine serrate margin and some stout setae. Gnathopod 2 coxa longer than that of gnathopod 1, slightly tapering distally, apically rounded; carpus longer than propodus and carpus of gnathopod 1, only weakly expanded distally; propodus narrower than that of gnathopod 1; dactylus with row of stout setae on posterior margin; palm narrow, with fine serrate margin and some stout setae. Coxa 3 tapering and rounded distally. Coxa 4 largest, surpassing all other coxae, with complex sculpture: 1 rounded bulge on lateral face and 2 protrusions close to distal margin; an oblique distal margin with a shallow depression; posterior margin with deep excavation between rounded posterodistal angle and long posteromarginal, proximal, subacute process, that is partially covered by coxa 5; semicircular ridge on lateral face, rather indistinct in distal half. Coxa 5 wider than long, embedding posteromarginal process of coxa 4 in groove on lateral face;

anterior margin rounded, posteriorly produced, lateral face with strong ridge; ventral margin subacute; Pereopod 6 coxa about as wide as long, anterior margin straight, posterior margin rounded, lateral face produced into diagonal ridge which is situated close the proximal posterior region of coxa 5, short ventral angular lobe posteriorly; basis with rounded proximal lobe and additional edge posteromarginally, with slender setae anteromarginally, anterior margin convex, lateral face with ridge. Pereopod 7 coxa wider than long, anterior margin straight, posterior margin rounded; basis with convex anterior and straight posterior margin, tapering distally. Uropod 1 peduncle somewhat shorter than rami, with slender setae proximomediomarginally; spine-like setae only on lateral side (apart from 1 medioapical seta); outer ramus slightly longer than inner one. Uropod 2 peduncle shorter than outer ramus, which is shorter than inner one. Uropod 3 peduncle shortest; rami subequal, long, and apically rounded. Telson 1.6 x as long as wide, with rounded apical lobes and v-shaped excavation; lateral margins weakly convex.

Size. Ovigerous female 52 mm.

Remarks. This species can be distinguished very easily from other epimeriids by the following combination of characters:

(1) smooth pereon segments 1-5; posterior carinae from segment 6 on (though inconspicuous on pereonites 6-7) reaching to urosomite 1; carinae on pleonites subacute with a

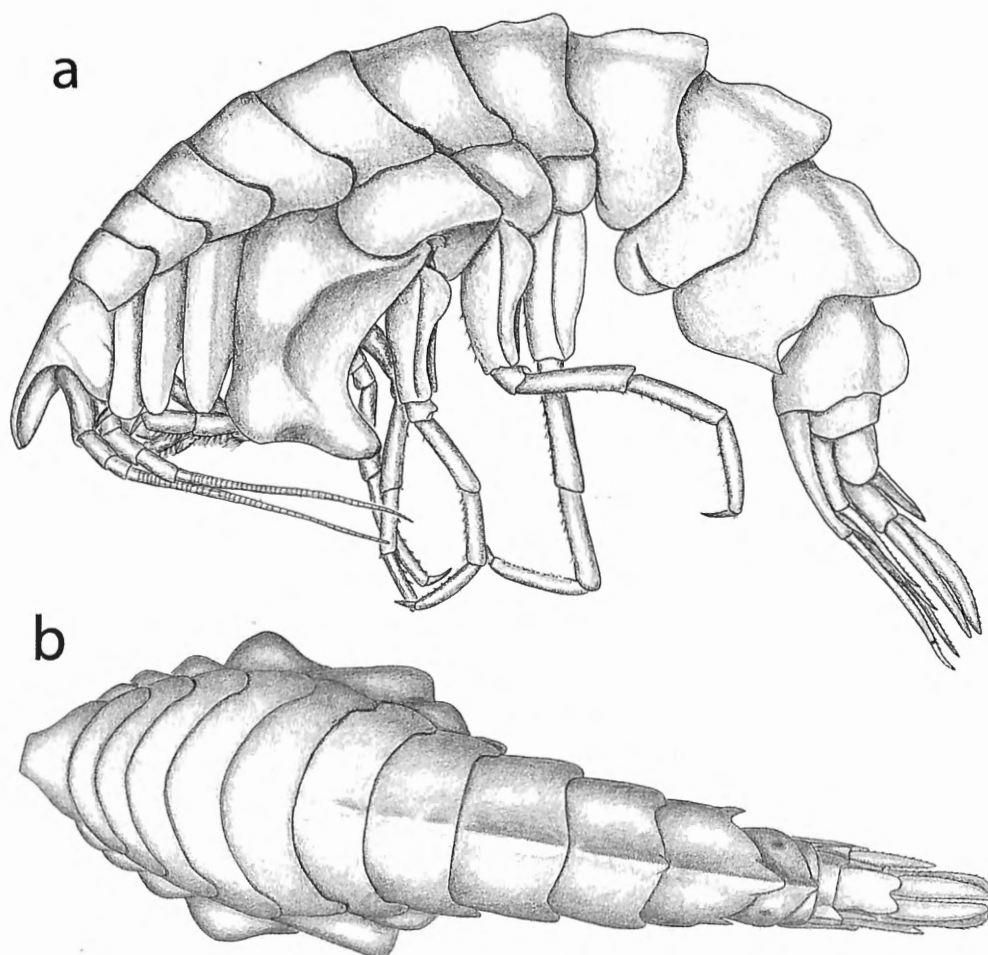


Fig. 18a-b. *Epimeria heldi*. a) left lateral view; b) dorsal view.

- shallow depression, blunt on urosomite 1,
- (2) coxae 1-3 with rounded apex,
- (3) coxa 4 sculptured, with 3 rounded bulges on the lateral face, and a ridge that runs in a semicircle on the surface and an oblique distal margin,
- (4) basis 7 narrow and posterior margin straight,
- (5) epimeral plates 1-2 rounded without posteroventral angle, and
- (6) apex of uropod 3 rami rounded.

Epimeria heldi does not belong to the genus *Metepimeria* due to its 4-articulate maxilliped palp (vs. 3-articulate), nor to *Epimeriella* having a well developed mandibular molar (vs. setose lobe) and a normal lower lip (vs. wide hypopharyngeal gap).

There are several species of *Epimeria* from many regions outside Antarctica that have smooth anterior pereonites and carinae on the pleonites without additional lateral teeth. Only *E. georgiana* Schellenberg, 1931a from the Antarctic bears a similar shaped coxa 4 as *E. heldi* (but not its characteristic sculpture) but, amongst many differences, this species can be discriminated from *E. heldi* by the wide and deeply notched posterior margins of bases 5-7. *Epimeria grandirostris* (Chevreux, 1913) also has a sculpture on the lateral face of coxa 4, but this article is much narrower and without the 3 bulges of *E. heldi*. In addition, the dorsal carinae start on

pereonite 1 and there are additional teeth on both sides of the carinae. In several other species of *Epimeria* the epimeral plate 1 is also ventrally rounded, however, a wanting posteroventral angle on epimeral plate 2 as in the *E. heldi* is unique.

Type locality. South Shetland Islands: 60°54.60'S 55°45.90'W.

Distribution. Only known from type locality.

Depth range. 235 m.

Epimeria inermis Walker, 1903a

(Fig. 19a-b, Colour plate 1c, Map 10: rhomb)

References and synonymy. De Broyer *et al.* 2007: 40.

Diagnosis. Rostrum longer than first peduncular article of antenna 1, eyes large, ocular lobe rounded, postantennal corner angled. Pereonites 2-3 with short, dorsal posteromarginal protrusions, not carinate. Pereonites 4-7 and pleonites 1-3 with broad, blunt carinae, pereonite 7 and pleonite carinae in lateral view with weak depression, pleonite 3 and urosomite 1 with dorsolateral ridges. Urosomite 1 with mid-dorsal hump, urosomite 2 shortest, urosomite 3 with dorsolateral

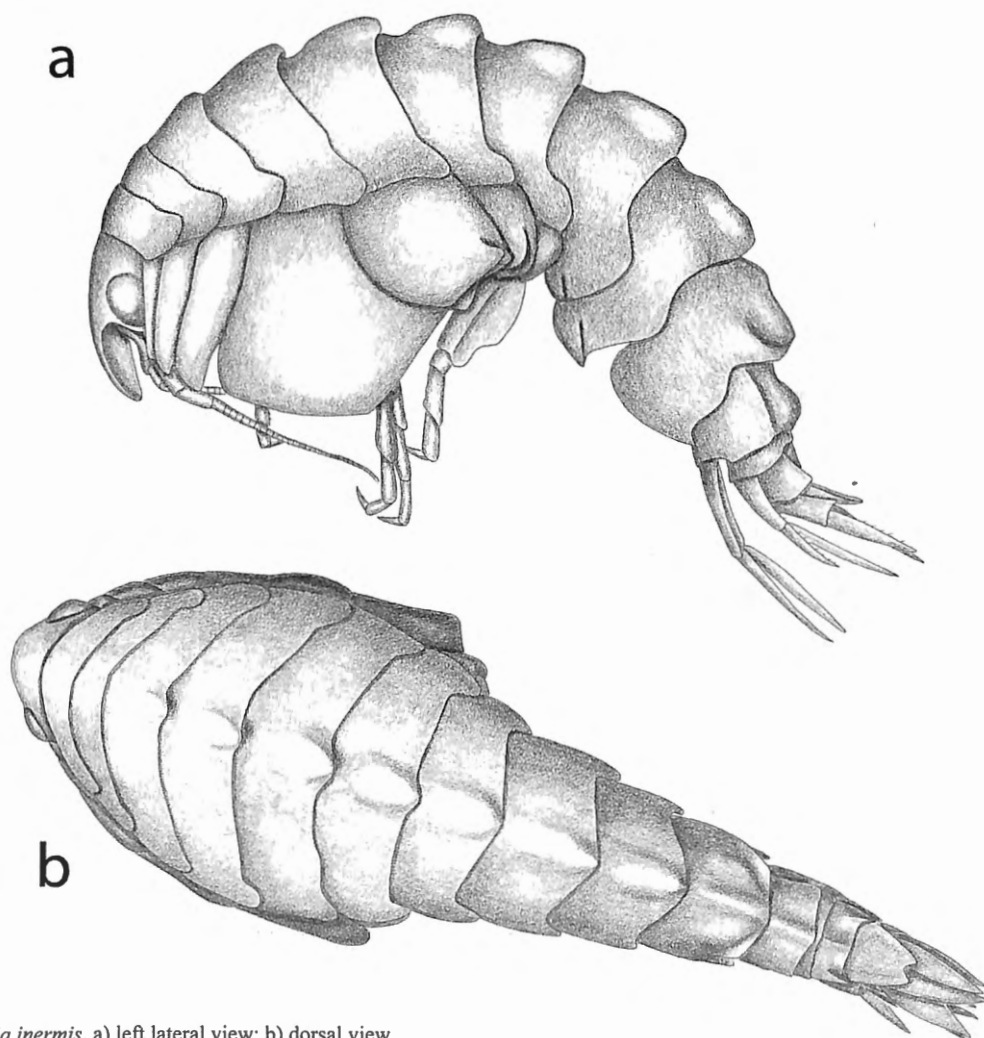


Fig. 19a-b. *Epimeria inermis*. a) left lateral view; b) dorsal view.

ridges. Epimera on pleonites lateromarginally rounded, posteroventral angle produced, pointed on pleonites 2 and 3. Coxae 1-3 with posteroapical angle. Gnathopods subchelate, palm indiscernible serrate, dactyls with short spines on inner curvature. Coxa 4 largest, smooth, shield-like and bowed ventrally, apically truncate or weakly convex, posterior distal margin straight, relative short, broad posteromarginal proximal lobe, which is hidden by a fold of coxa 5. Coxa 5 with a lateral hump. Coxa 6 rounded posteriorly with produced hump on lateral surface, bases 5-7 ridged, posterior margin excavate on basis 7 only, rather straight on bases 5-6, each with short, rounded posterobasal process directing posteriorly, but no ventrally directed teeth, created by a deep notch. Telson weakly notched.

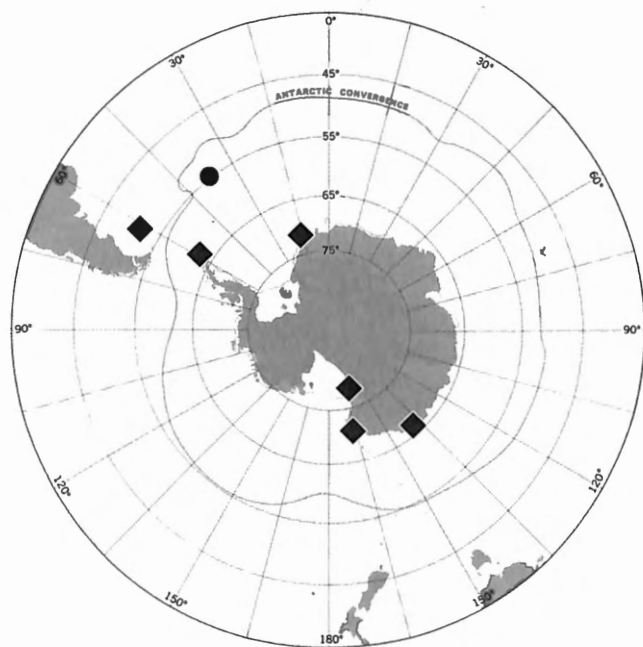
Size. Females 20-35 mm, males 13.5 mm.

Remarks. *Epimeria inermis* is very similar to *E. georgiana*, both having mid-dorsal hump-like carinae. From the latter species *E. inermis* can be differentiated by the unsculptured coxa, which has a straight or convex ventral margin and a linear posterodistal margin. The posterior margin of the basis of pereopods 5-6 is not developed to a ventrally directing tooth, as it is the case in *E. georgiana*, but these articles have posterobasal rounded lobes showing posteriorly. Similar shaped bases 5-7 are developed in *E. rimicarinata*, but in this species the posterior margin of coxa 4 is excavate, the dorsal carinae are bilobed, and there are additional dorsolateral processes on pereonites 5-7 and pleonites 1-3.

Type locality. Ross Sea: Cape Adare.

Distribution. Adélie Coast; west of Falkland Islands; Ross Sea; South Shetland Islands; Bransfield Strait; Weddell Sea.

Depth range. 15-462 m.



Map 10. *Epimeria inermis*: rhomb; *Epimeria intermedia*: circle.

Epimeria intermedia Schellenberg, 1931a

(Fig. 20a-b, Map 10: circle)

References and synonymy. De Broyer *et al.* 2007: 41.

Diagnosis. Rostrum as long as head, postantennal corner pointed. Pereonites 3-7 with shallow mid-dorsal keel, small mediolateral humps on pereonites 5-6 and pleonites. Pleonites mid-dorsal keel depressed resulting in bilobed carinae in lateral view; epimeral plate 1 posteroventral corner rounded, plate 2 with wide angle, plate 3 produced and pointed. Urosomite 1 with mid-dorsal acute tooth and dorsolateral ridges. Urosomite 2 shortest. Dorsolateral ridges on urosomite 3, drawn out into pointed processes, dorsomedial upright tooth. Coxae 1-3 tapering distally into a pointed narrow apex, anterior margin of coxae 1-2 straight. Propodus of gnathopods 1-2 elongate, not apically expanded, with narrow palm. Coxa 4 proximal anterior margin weakly concave, distal margin oblique and slightly concave, posteromarginally excavate, posterodistal corner angled. Coxa 5 rounded anteriorly, posterior margin only moderately produced, pointed process ventrally. Coxa 6 longer than wide, anterior margin straight, posteriorly rounded. Bases 5-6 ridged, posteriorly excavate, posterodistal angle somewhat produced, proximal posterior margin produced to a rounded, posteriorly directed lobe. Basis 6 with weak ridge on lateral surface, posterodistal margin excavate.

Size. Females 10-15 mm, juvenile 5.5 mm.

Remarks. There are differences between the description of Schellenberg (1931a) and K.H. Barnard (1932). In Schellenberg's material the dorsal carinae start at pereonite 3, according to Barnard's description on pereonite 1. Some of Barnard's specimens have the posterior margins of pereonites 5-7 and pleonite 1 feebly nodulose, which is not the case in the type material. Future investigations have to show, if the difference are within the variability of the species or if they indicate two separate species.

E. intermedia has a similarly shaped coxa 4 as *E. georgiana*, however, the narrow, pointed coxae 1-3, the less developed dorsal humps, the additional dorsolateral armature on the posterior pereonites and the pleonites clearly separates *E. intermedia* from *E. georgiana*. *Epimeria intermedia* resembles *Metepimeria acanthurus* in the pointed dorsal process on urosomite 1, the additional ridge-like dorsolateral armature of the pleonites, the shape of the dorsal carinae and the shape of coxae 1-4, but *M. acanthurus* has the maxilliped palp 3-articulate (vs. 4-articulate in all other epimeriids) and the bases 5-6 are not produced at the posterior proximal margin.

Type locality. South Georgia: Cumberland Bay.

Distribution. South Georgia.

Depth range. 75-273 m.

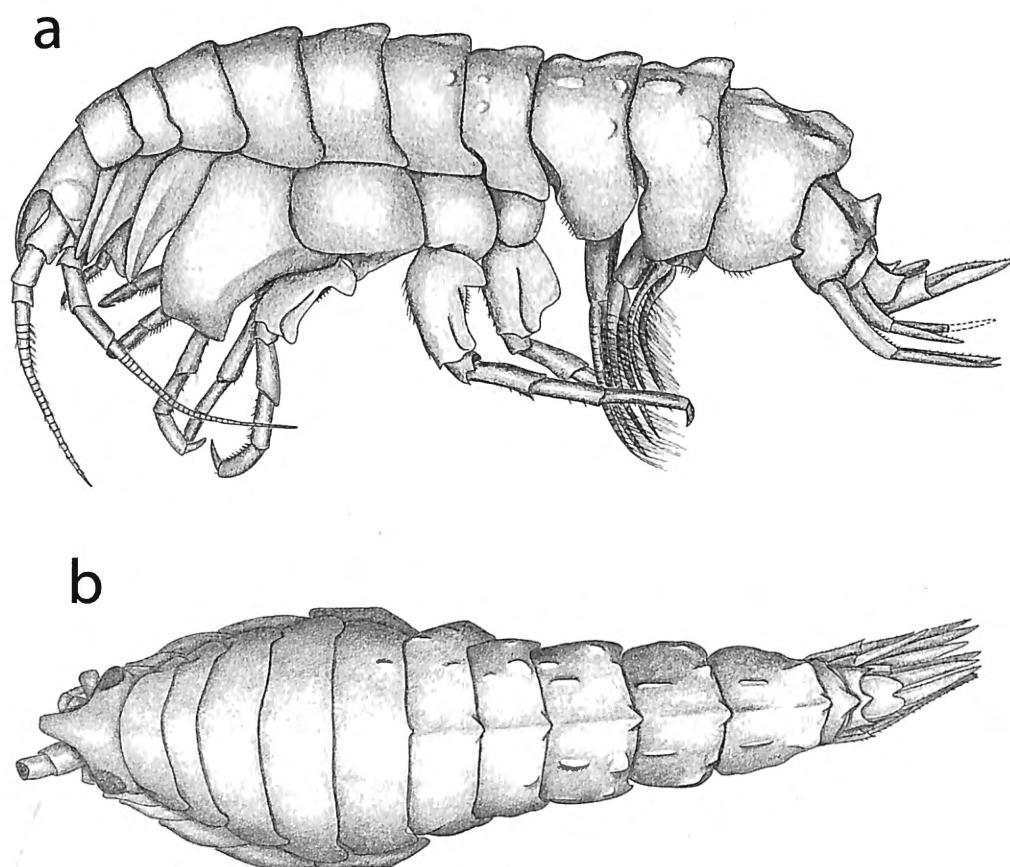


Fig. 20a-b. *Epimeria intermedia*. a) left lateral view; b) dorsal view.

Epimeria macrodonta Walker, 1906b

(Fig. 21a-b, Colour plate 1d, Map 11: rhomb)

References and synonymy. De Broyer *et al.* 2007: 41.

Diagnosis. Head with narrow, weakly flexed rostrum, about twice the length of the head, eye large and prominent, ocular lobe with short protrusion, anteroventral corner pointed. Pereonite 1 with blunt dorsal carina, and with one small dorsolateral tooth on both sides (sometimes minute). Pereonite 2 shortest, wanting a dorsal carinae or dorsolateral teeth. Dorsal carinae and dorsolateral posterior directing teeth on pereonites 3-7 and pleonites 1-3, increasing in length on each segment; the anterior edge of each carina sharp and narrow, widened posteriorly, seen from posteriorly the carinae are excavate (except for pereonite 3 and pleonite 3 carinae). Dorsal carina on pleonite 3 slightly depressed anterodistally in lateral view; posterodistal corners of all three pleonite epimera produced and pointed. Urosomite 1 longest, with mid-dorsal pointed process. Urosomite 2 shortest, with small, pointed, lateral posteromarginal processes. Urosomite 3 with inconspicuous mid-dorsal shallow keel and laterodorsal ridges which are drawn out into acute tips posteriorly. Coxae 1-4 rounded anteriorly and excavate posteriorly, pointed ventrally, lateral surface with sharp ridge. Propodus of gnathopods 1-2 slender, palm narrow and oblique, dactylus

with short spines on inner curvature. Coxa 4 with a pointed process at the dorsal region of a semicircular ridge, which flows into a pointed posteromarginal projection. Coxa 5 on lateral surface with long wing-like acute process. Coxa 6 with similar, but shorter process, rounded lobe ventrally. Posterodistal angle of coxa 7 rounded. Basis 5 with rounded posterobasal lobe and acute posterodistal process, surface with sharp ridge. Basis 6 of similar shape, but somewhat wider. Basis 7 sinuous posteromarginally with pointed posterodistal angle. Telson notched about one third.

Size. Female 34 mm, male 13-30 mm.

Remarks. *Epimeria macrodonta* resembles *E. similis* very much. From the latter species *E. macrodonta* can be differentiated by the mid-dorsal carina on pereonite 1, the lack of carina and teeth on pereonite 2, the longer process on the lateral face of coxa 4, and the rostrum that is twice as longer as the head. *Epimeria oxycarinata* and *E. pulchra* differ in the following characters: carinae each with lateral ridge, mid-dorsal carina, dorsolateral and lateral teeth present on pereonite 2, lateral teeth on each pereonite, additional small teeth on pleonites, coxae 1-3 concave anteromarginally and convex posteromarginally, gnathopodal palms wanting, dactyli strongly pectinate, coxa 4 ventrally broad and excavate, basis 7 posterior margin deeply excavate. *Epimeria rubriques* deviates in the following: slender dorsal carinae on all pereonites and pleonites, dorsolateral teeth on pereonites

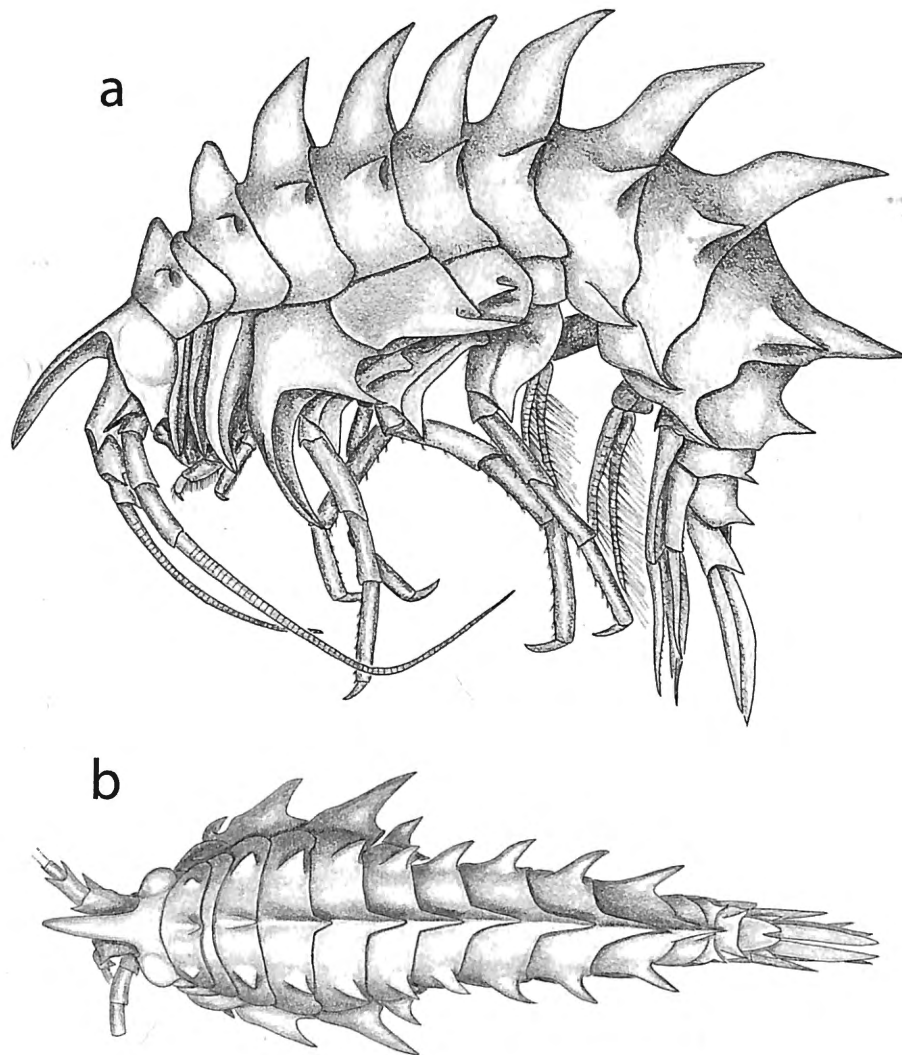
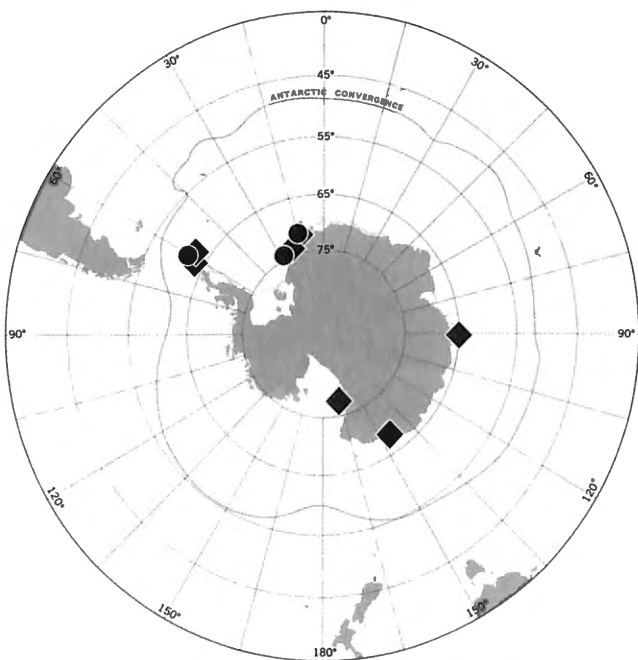


Fig. 21a-b. *Epimeria macrodonta*. a) left lateral view; b) dorsal view.



Map 11. *Epimeria macrodonta*: rhomb; *Epimeria similis*: circle. It may be that older references of locations (before 1985) may be wrong due to problems of distinction between these species.

and pleonites wanting (except for rounded protrusions), coxae 1-3 broad, gnathopods distally expanded, coxa 4 ventrally broad and without tooth on lateral surface.

Type locality. Ross Sea: McMurdo Sound.

Distribution. Adélie Coast; Bransfield Strait; Davis Sea; Marguerite Bay; Oates Coast; Palmer Archipelago; Ross Sea; South Shetland Islands; Weddell Sea.

Depth range. 30-914 m.

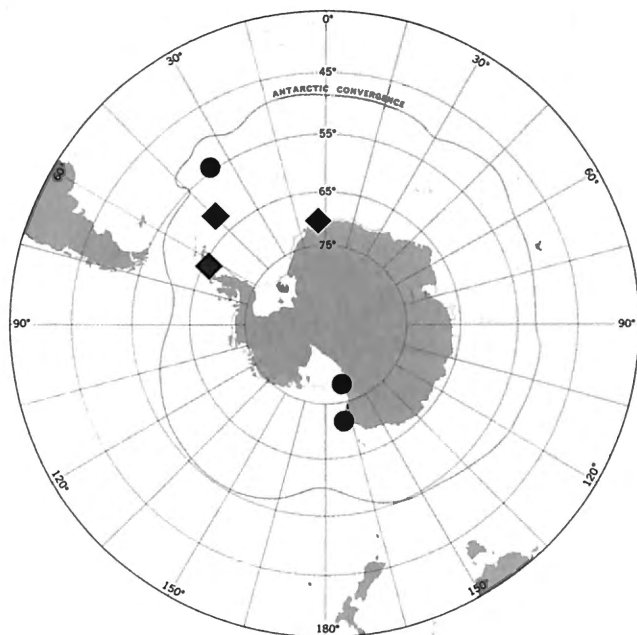
Epimeria monodon Stephensen, 1947a

(Fig. 22a-b, Colour plate 2c, Map 12: rhomb)

References and synonymy. De Broyer *et al.* 2007: 42.

Diagnosis. Eyes of normal size. Pereon smooth. Pleonite 3 with mid-dorsal keel, drawn out into a short posterior process. Urosomite 1 with rounded hump. Coxae 1-3 rounded distally. Coxa 1 anterior and posterior margins almost parallel. Propodus of gnathopods 1-2 weakly expanded distally. Coxa 4 posterodistal angle not projecting ventrally, approximating to 90°. Basis 5 subrectangular. Basis 6 somewhat widened

and lobate distally. Basis 7 roundly lobate distally.
Size. Female 29 mm, male 12-16 mm.



Map. 12. *Epimeria monodon*: rhomb; *Epimeria puncticulata*: circle.

Remarks. The illustrated specimen agrees well with the description given by Stephensen (1947a), but coxa 5 appears to be slightly wider in the present material. Basis 6 is more lobate distally in the present material compared with Stephensen's drawing. *Epimeria monodon* resembles *E. puncticulata*, but the latter has a keel and posteromarginal tooth on pleonites 2-3, whereas *E. monodon* has only the pleonite 3 keeled and strongly toothed. In this regard *E. monodon* is similar to *E. annabellae*, but the tooth of *E. annabellae* is much larger and also urosomite 1 bears a tooth (vs. a blunt protrusion in *E. monodon*). *Epimeria monodon* is very similar to *E. extensa* in having a dorsal process on pleonite 3. However, *E. monodon* has coxa 1 with parallel margins and rounded apex (vs. convex anterior and concave posterior margins and pointed tip), bases 5-7 wider, basis 7 with broad distal lobe (vs. tapering lobe, with weak posteromarginal distal excavation). The telson of *E. extensa* has smooth apices whereas that of *E. monodon* has small notches.

Type locality. Palmer Archipelago: Flandres Bay.

Distribution. Palmer Archipelago; South Orkney Islands; Signy Island; South Shetland Islands, King George Island; Weddell Sea.

Depth range. 0-254 m.

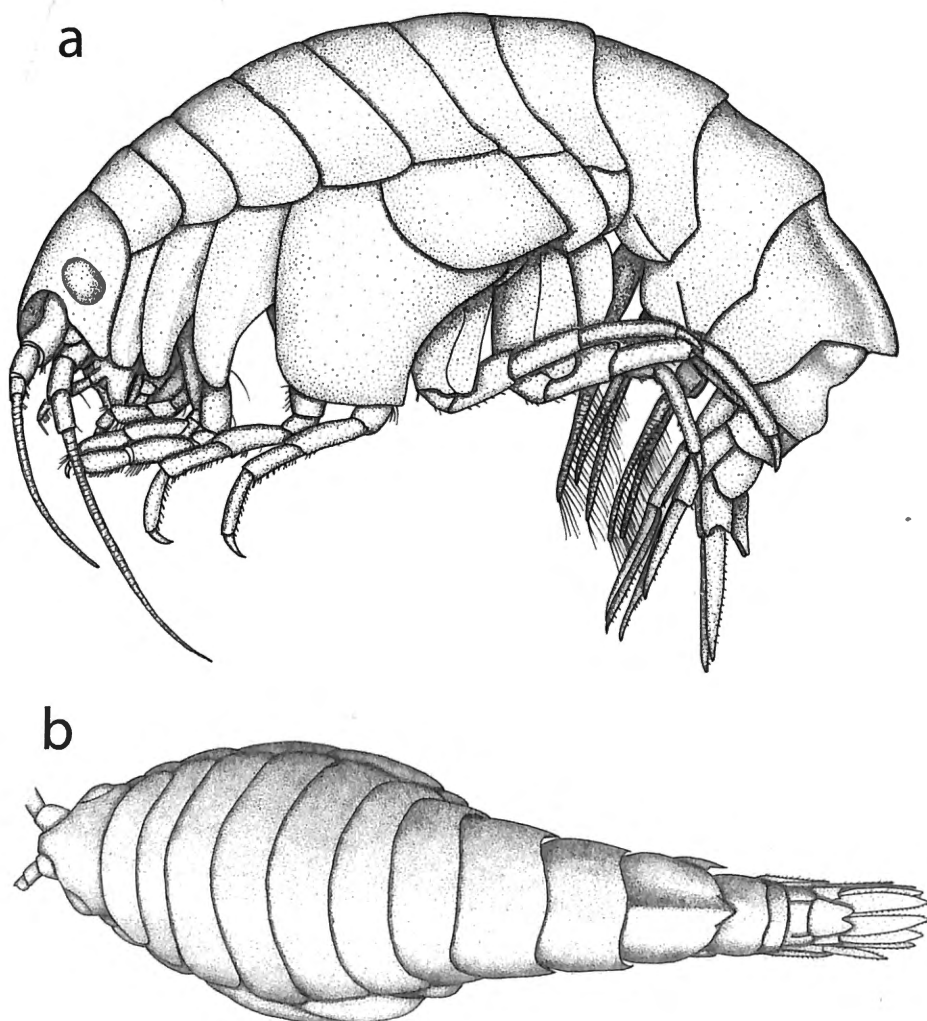


Fig. 22a-b. *Epimeria monodon*. a) left lateral view; b) dorsal view.

Epimeria oxicarinata Coleman, 1990b

(Fig. 23a-b, Colour plate 2g, Map 13: rhomb)

References and synonymy. De Broyer *et al.* 2007: 42.

Diagnosis. Head with elongate rostrum; anteroventral angle acute; eyes round, prominent. Pereonite 1 with large, anteriorly curved, mid-dorsal carina. Pereonite 2 shortest, with small, pointed, upright carina, less than half as long as that of pereonite 1. Pereonites 3-7 with long, pointed, upright carinae; all carinae laterally ridged, up to 5-6 times as long as that of pereonite 2. All pereonites with a pair of dorsolateral and lateral teeth. Pleonites 1-3 with mid-dorsal carinae, that of pleonite 3 shortest, close to the basis a pair of pointed teeth; each pleonite with dorsolateral stout teeth and several small teeth on dorsolateral surface. Epimeral plate 1 with blunt posteroventral angle, epimeral plates 2-3 with pointed posteroventral corner. All epimeral plates with ridges on lateral surfaces. Urosomite 1 longest, with large pointed, mid-dorsal tooth and 1 pair of small lateral teeth. Urosomite 2 shortest, posterodistal margin with 1 small median tooth and 2 larger lateral teeth. Coxae 1-3 pointed distally, with

ridge on lateral surface, anteromarginally slightly concave, posteromarginally convex. Gnathopodal propodi slender, without palm, dactyli strongly pectinate. Coxa 4 ventrally broad, excavate, strong ridge from posterodistal tip to posteromarginal process, with tooth on lateral surface, posteromarginally excavate. Coxa 5 with acute process directing laterally, with 2 strong ridges on lateral surface flowing into the tip of the process. Coxa 6 with prominent tooth, strongly sculptured by ridges. Coxa 7 round and small, with acute tooth at posterior margin. Basis of pereopods 5-6 posterior margin with 1 proximal process and a longer more pointed distal process. Basis 7 posterior margin deeply excavate distally. Merus and carpus of pereopods 5-7 drawn out into pointed process posterodistally. Telson notched more than one third.

Size. Female 16-26 mm.

Remarks. *Epimeria oxicarinata* is evidently closely related to *E. pulchra*. Both species possess long, laterally ridged dorsal carinae, shortened pereonite 2 bearing a shorter and narrower dorsal carina, and coxa 4 of similar shape (distal excavation and ridges which form an acute tooth projecting laterally from the body). The dorsal carina on pereonite 1 of

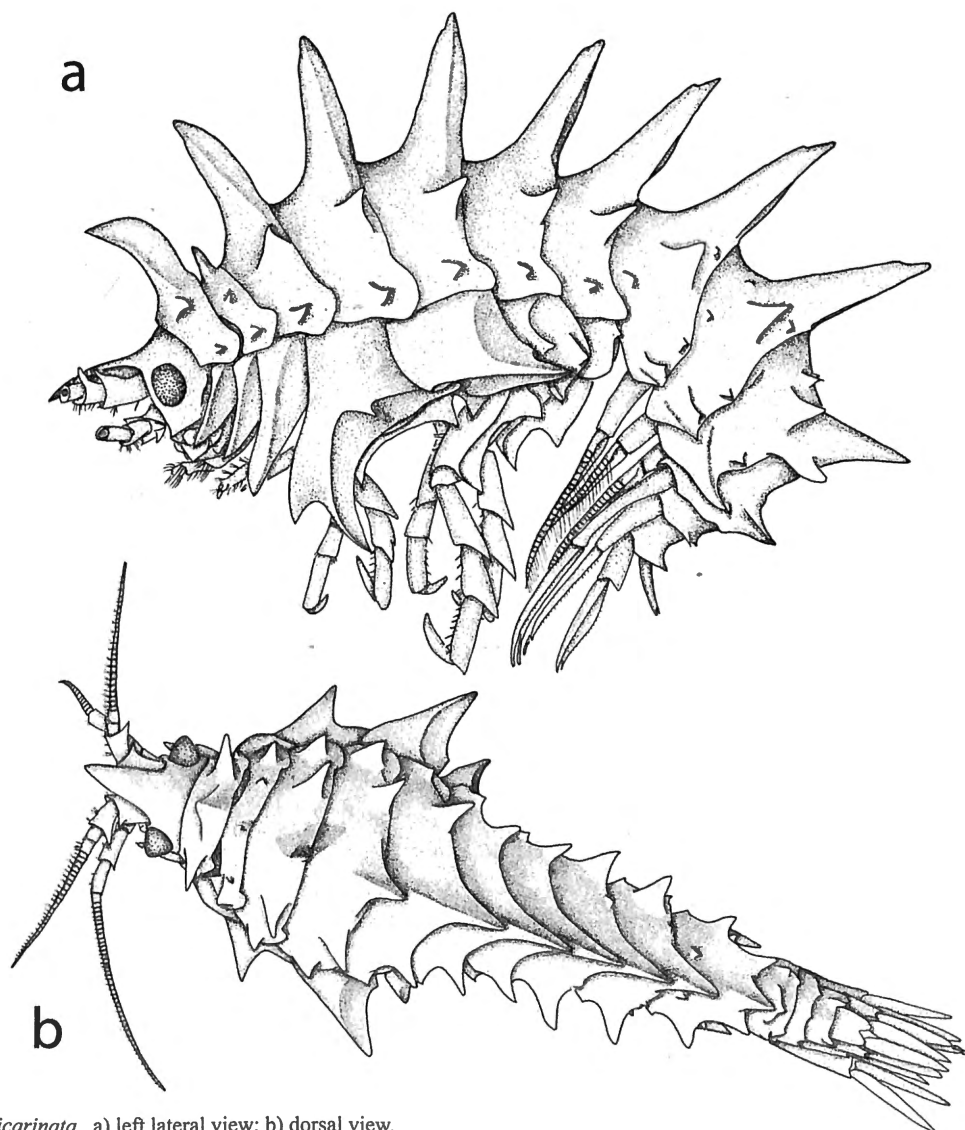
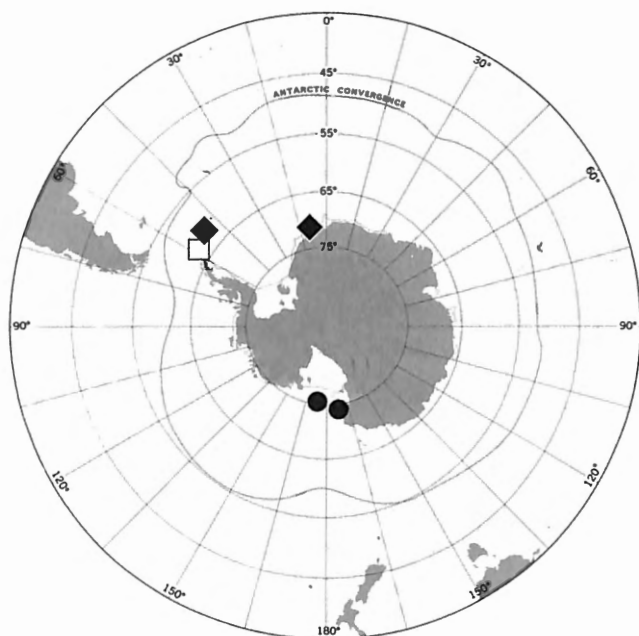


Fig. 23a-b. *Epimeria oxicarinata*. a) left lateral view; b) dorsal view.



Map. 13. *Epimeria oxycarinata*: rhomb; *Epimeria rimicarinata*: circle; *Epimeria reoproii*: open square.

E. oxycarinata is about 3 times longer than that of pereonite 2 and curved forwards. In *E. pulchra* it is only slightly longer and straight. In *E. oxycarinata* the armature of the pereonites consists of acute teeth, in *E. pulchra* of tubercles. One species bearing some superficial resemblance of *E. oxycarinata* is *Paramphithoe hystrix* (Sars, 1895), not an Antarctic species though, which has acute dorsal carinae and a forward-curving carina on pereonite 1. *Epimeria oxycarinata* can be distinguished easily from this species by its ridged coxae, long rostrum, single dorsal carina on pereonite 1 (instead of 2 carinae as in *P. hystrix*) and by the notched telson. Similar to *E. Oxycarinata*, in *E. macrodonta* pereonite 2 is shortened, but without tooth. *E. macrodonta* also lacks the additional lateral teeth on the pereonite and pleonite tergites and has coxa 4 with only 1 apical process.

Type locality. South Shetland Islands: Elephant Island, 61°10.1'S 55°57.9'W, 60°52'S 55°31.8'W.

Distribution. South Shetland Islands; Weddell Sea.

Depth range. 129-267 m.

Epimeria pulchra Coleman, 1990b

(Fig. 24a-b, Colour plate 2f, Map 9: circle)

References and synonymy. De Broyer *et al.* 2007: 42.

Diagnosis. Head with elongate rostrum, twice as long as head; eyes oval, prominent, drawn out into a small acute tip; ventral corner of head subacute; acute process between antennae 2; epistome with dorsally directed acute process. Pereonite 1 with dorsal carina and broad rounded projections dorsolaterally, small tooth close to the lateral margin. Pereonite 2 in lateral view with narrower dorsal carina, smaller in comparison with that of pereonite 1, on both sides of dorsal carina is a small

tooth and lateral protrusions with small acute tip. Pereonite 3 dorsal carina twice as long as that on pereonites 1 and 2, blunt dorsolateral protrusion, lateral process with acute small tip; pereonites 5-7 subequal to pereonite 3, but dorsal carina longer and additional tooth between dorsolateral and lateral protrusion, posteroventral corner of pereonite 7 with small tooth. Pleonites 1-3 with carinae similar to those on pereonites 4-7, all carinae laterally ridged. On all pleonites numerous small teeth on dorsolateral and lateral surface. Epimeral plate 1 rounded posteroventrally, pointed on epimera 2-3, posterolateral margin of pleonite 3 acutely produced. Urosomite 1 with small dorsal carina, on both sides with 1 tooth and 2 additional lateral teeth. Urosomite 2 with 2 lateral teeth posteromarginally and 1 small posteromarginal tooth. Urosomite 3 with posteromarginal spine-like tooth, and protruding processes on both sides. Coxae 1-3 pointed distally, with ridge on lateral surface, anteromarginally slightly concave, posteromarginally convex. Propodi of gnathopods 1-2 slender, without palm, dactyli strongly pectinate. Coxa 4 ventrally expanded, excavate distally, strong ridge from posterodistal tip to posteromarginal process and additional ridges at the anterodistal corner and the proximal lateral surface, with small protrusion at the junction of the ridges on the lateral surface, posterior coxal margin excavate. Coxa 5 with long acute process directing laterally like a wing, with 2 strong ridges on lateral surface flowing into the tip of the process. Coxa 6 with prominent tooth, strongly sculptured by ridges. Coxa 7 round and small, with acute tooth at posterior margin. Basis of pereopods 5-6 posterior margin with 1 pointed proximal process and a slightly longer, acute distal process. Basis 7 posterior margin deeply excavate distally. Merus and carpus of pereopods 5-7 drawn out into pointed process posterodistally. Telson notched one third.

Size. Ovigerous female 25-29 mm.

Remarks. *Epimeria pulchra* is most closely related to *E. oxycarinata* and *E. grandirostris*. The pereon of *E. pulchra* is broader (seen in dorsal view) than in those other species. The dorsal carinae are similar in form to those of *E. grandirostris*, but considerably longer. Both species have tubercle-like armature of the pereon, although *E. pulchra* bears a small additional tooth on pereonites 4-7. Coxa 4 is of the same form as in *E. oxycarinata*, but wider. Coxa 5 protrudes laterally from the body, like a wing. This unique character, together with the typical well-developed dorsal carinae and the pointed eyes, allows rapid identification.

Type locality. South Orkney Islands: 60°43.12'S 45°30.86'W.

Distribution. South Orkney Islands; Weddell Sea.

Depth range. 141-499 m.

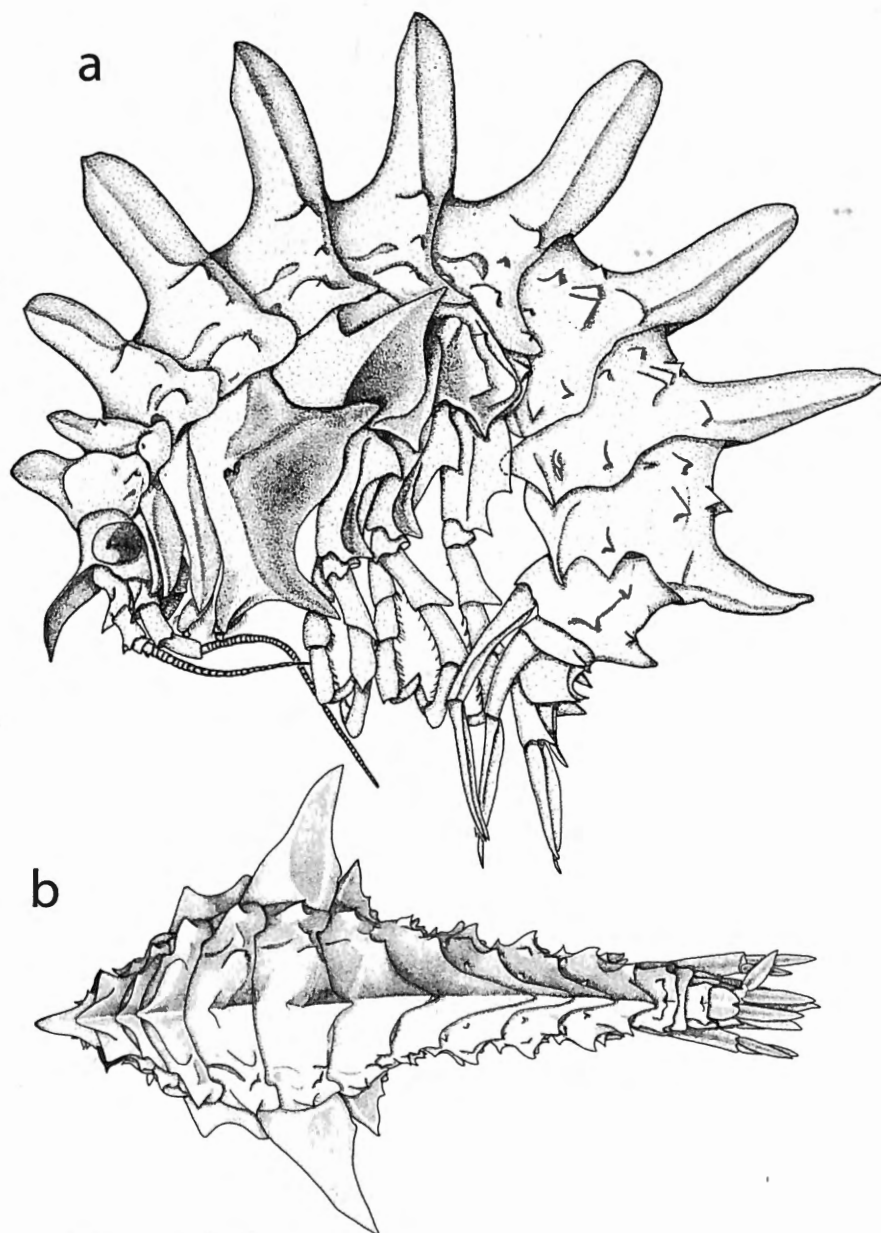


Fig. 24a-b. *Epimeria pulchra*. a) left lateral view; b) dorsal view.

***Epimeria puncticulata* K.H. Barnard, 1930**

(Fig. 25, Colour plate 2d, Map 12: circle)

References and synonymy. De Broyer *et al.* 2007: 43.

Diagnosis. Pleonites 2-3 with mid-dorsal keel, drawn out into small posterior projections, that of segment 2 is pointed whereas that of segment 3 is blunt. Urosomite 1 with a posterior hump. Coxa 1 subtriangular in shape, carpus slightly expanded distally, propodus slender without conspicuous palm. Coxa 2 convex anteriorly, posterior margin rather linear, carpus and propodus slender and elongate. Coxa 3 somewhat excavate posteriorly. Coxa 4 posterodistal angle not projecting ventrally, posteroventral margin broad. Basis 5 posterodistal angle drawn out, distal margin sinuous. Basis 6 slightly excavate posteriorly, bluntly lobate distally. Basis 7 with conspicuous round lobe distally and slight posteromarginal excavation.

Size. Females 10-17 mm, male 7-10.5 mm.

Remarks. *Epimeria puncticulata* resembles *E. monodon*, but the first has a keel and posteromarginal tooth on pleonites 2 and 3, whereas *E. monodon* has only the pleonite 3 keeled and strongly toothed. In *E. puncticulata* the posterior margins of bases 5-6 are somewhat roundly produced basally and acutely produced distally. As a result the posterior margin of these articles appears excavate whereas in *E. monodon* they are straight or convex. Similar to *E. puncticulata* is *E. robusta*, but this species has the mid-dorsal tooth on pleonite 3 upright, a broader coxa 4, posterior margin of coxa 5 produced (vs. rounded), and bases 5-6 with ventrally directed process (vs. weak excavation).

Type locality. Ross Sea: McMurdo Sound.

Distribution. Adélie Coast; Antarctic Peninsula; Ross Sea; South Georgia; South Shetland Islands; Weddell Sea.

Depth range. 60-1590 m.

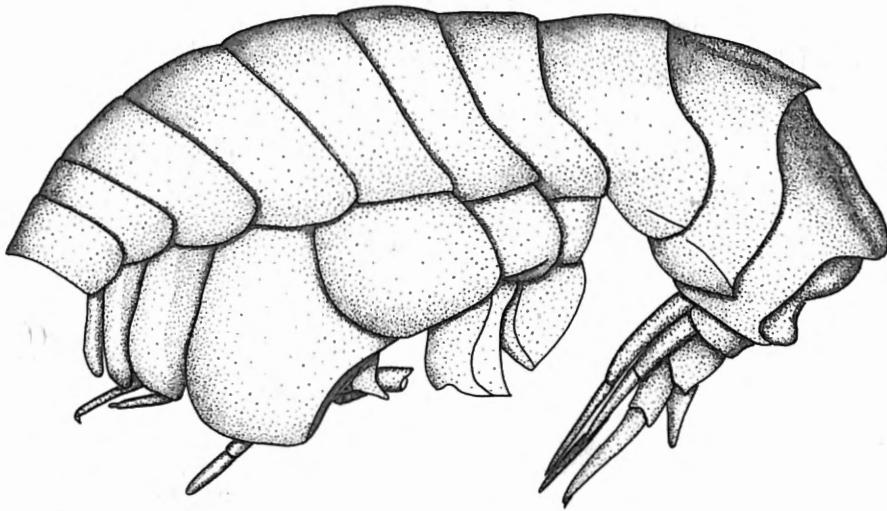


Fig. 25. *Epimeria punctulata*. Left lateral view, head missing.

Epimeria reoproi Lörz & Coleman, 2001

(Fig. 26, Colour plate 2h, Map 13: open square)

References and synonymy. De Broyer *et al.* 2007: 43.

Diagnosis. Head with strongly flexed rostrum, reaching the distal margin of peduncular article of antenna 1; eyes large round, somewhat prominent. Pereonite 1 less than half the length of head. Pereonite 2 shortest. Pereonite 3 somewhat shorter than 1. Pereonites 4-6 subequal in length, with subacute posteroventral angles. Pereonite 7 slightly longer than 6. Pleonite 1 and 3 shorter than 2. Pereonites 1-4 dorsally smooth, pereonites 5-7 with increasing dorsal teeth; pleonites 1-3 with strongly posteriorly curved dorsal teeth. Posterolateral margin of pereonite 6 roundly produced, that of pereonite 7 with one tooth on both sides, similar but larger teeth on pleonites 1-3. Epimeral plates with posterolateral rounded protrusion and posteroventral acutely produced angles. Urosomite 1 with shallow dorsal elevation. Urosomite

2 shortest. Urosomites 2 and 3 smooth. Antenna 1 peduncular article 1 stout with many plumose setae, distal margin 3 short processes; article 2 less than half the length of article 1, distal margin with 2 short processes. Antenna 2 longer than 1; peduncular article 1 scale-like; article 2 with short nephridial cone and acute distal margin; articles 4 and 5 subequal. Gnathopod 1 coxa tapering distally, anterior margin sinuous; carpus expanded distally, wider than propodus; palm shorter than dactylus length; inner curvature of dactylus with traces of serration. Gnathopod 2 longer than gnathopod 1; coxa convex anteromarginally, concave posteromarginally, slightly tapering distally, apex rounded; carpus and propodus subequal in length and width; palm shorter than dactylus length; inner curvature of dactylus with traces of serration. Coxa 3 subequal in shape compared to that of gnathopod 2, but wider. Coxa 4 with ridge on lateral face, anteriorly strongly convex, apex drawn out into long pointed posteriorly curved process, posteroproximomarginally with rounded lobe. Pereopod 5 coxa wider than long, drawn out into long, acute process,

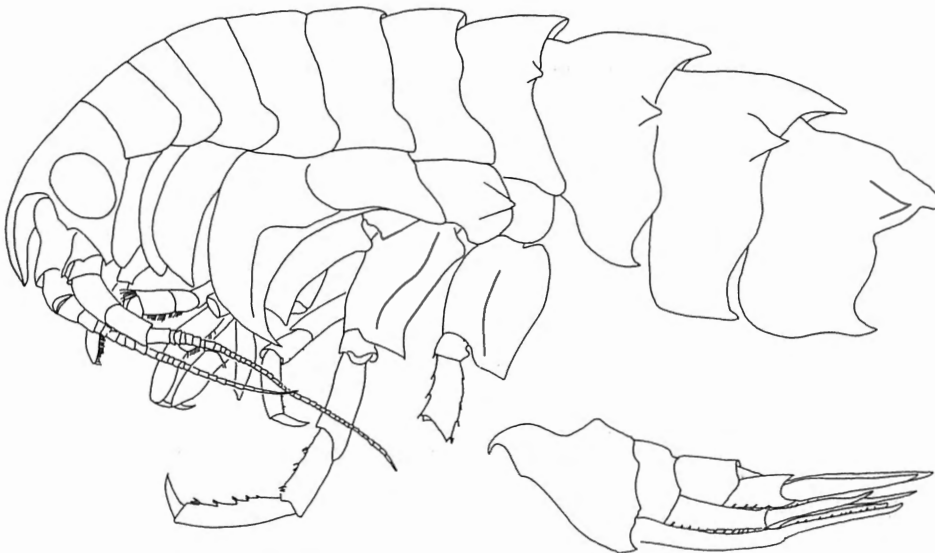


Fig. 26. *Epimeria reoproi*. Left lateral view, urosome broken off and separate.

anteriorly rounded; basis weakly convex, posterior margin with proximal rounded process and distal pointed process, distal margin sinuous. Pereopod 6 coxa truncate anteriorly, rounded posteriorly, large tooth on the face of coxa; posterior margin similar to that of pereopod 5, but less deeply excavate, anterior margin sinuous. Pereopod 7 coxa wider than long, truncate posteromarginally; basis convex anteromarginally, posterior margin weakly sinuous, posterventrally subacutely lobate. Uropod 1 peduncle subequal to outer ramus, outer ramus somewhat shorter. Uropod 2 peduncle shorter than outer ramus. Uropod 3 peduncle short with pointed process on apical margin, rami subequal in length. Telson slightly tapering distally, notched nearly $\frac{1}{4}$.

Size. 9–20 mm (no female or male characters present).

Remarks. This species bears some superficial resemblance to *Metepimeria acanthurus* Schellenberg, 1931a in the similar dorsal armature. However, compared with *E. reopoi* the maxilliped palp of *M. acanthurus* is only 3-articulate (vs. 4-articulate), coxa 4 is truncate apically (vs. acutely pointed), the rostrum is straight (vs. strongly flexed). Due to the 4-articulate maxilliped palp *E. reopoi* is classified as *Epimeria*. Within this genus several species are similarly anterodorsally smooth and carinate on the posterior pereonites and/or pleonites. *Epimeria cora* J.L. Barnard, 1971, *E. cornigera* (Fabricius, 1779), *E. tuberculata* Sars, 1895 and *E. glauca* Barnard, 1961 have slender bases 5–7 which are not widened apically (vs. drawn out to posterodistal process). None of these species occur in the Antarctic Ocean. *Epimeria reopoi* has to be discriminated from existing Antarctic *Epimeria* species with smooth anterior pereon: *E. annabellae* Coleman, 1994, *E. heldi* Coleman, 1998a, *E. monodon* Stephensen, 1947a, *E. puncticulata* K.H. Barnard,

1930, *E. robusta* K.H. Barnard, 1930 and *E. vaderi* Coleman, 1998b. In *E. annabellae* only pleonite 3 and urosomite 1 are carinate, coxa 4 is much wider and less pointed, coxae 5–6 are posteriorly rounded and bases 5–6 are not cuspidate. *Epimeria heldi* has a rounded coxa 3 (vs. pointed) while coxa 4 is distally truncate (vs. pointed). In opposite to *E. reopoi*, *E. heldi* bears slender bases 5–7. *Epimeria monodon* has only a carina on pleonite 3. *Epimeria puncticulata* has inconspicuous carinae on the pleosome, also additional teeth guarding the carinae on the pleon are wanting (vs. strong carina on pereonite 5 to urosomite 1 with lateral teeth on pleosome). *Epimeria puncticulata* has coxa 4 apically rounded with rather straight posterior margin (vs. strongly pointed and excavated); coxae 5–6 rounded posteriorly (vs. pointed). *Epimeria robusta* has a strongly widened coxa 4 with a convex posteroventral margin (vs. narrower, concave margin and strongly pointed apex) and the posterior margins of the bases 5–6 are both deeply notched and have a pointed ventrally directed lobe and narrow apices (vs. excavate with distal pointed process). *Epimeria vaderi* and *Epimeria* sp. Andres, 1985 resemble the new species most. The differences between these species are shown in Table 2. The result of this comparison is that *E. reopoi* and *Epimeria* sp. Andres, 1985 are most similar. It is conceivable that *Epimeria* sp. Andres, 1985 is a subadult of *E. reopoi*. Although the male sex was determined in Andres' specimen it is not possible to sex the new species that is about 3 times as long as Andres' animal.

Type locality. Bransfield Strait: 63°00.10'S 60°31.00'W.

Distribution. Only known from type locality.

Depth range. 48 m.

Table 2. Morphological differences between *E. reopoi*, *E. vaderi* and *Epimeria* sp. Andres, 1985

	<i>Epimeria reopoi</i> Lörz & Coleman, 2001	<i>Epimeria vaderi</i> Coleman, 1998b	<i>Epimeria</i> sp. Andres, 1985
rostrum	strongly flexed, reaching distal margin of 1st peduncular article of antenna 1	straight, reaching distal margin of 1st peduncular article of antenna 1	straight, surpassing distal margin of 1st peduncular article of antenna 1
dorsolateral teeth on pleonites 1–2 (on both sides of carina)	single tooth	two teeth	single tooth
posteroventral angles of epimera 1–3	pointed and strongly produced	pointed, but weakly produced	pointed, but weakly produced
coxa 1	rounded	pointed	rounded
coxa 3	wide, with pointed apex	wide with pointed apex	narrow, angular apically
coxa 4	deeply excavate, apex acutely drawn out and curved posteriorly	not deeply excavate apex moderately drawn out, angular	deeply excavate, apex acutely drawn out and curved posteriorly
posteroventral angle of bases 5–6	strongly pointed	strongly pointed	less pointed
posterior margin of bases 5–6	deeply excavate	deeply excavate	rather straight
telson	with v-shaped notch	with v-shaped notch	with U-shaped notch

***Epimeria rimicarinata* Watling & Holman, 1980**

(Fig. 27a-c, Colour plate 2e, Map 13: circle)

References and synonymy. De Broyer *et al.* 2007: 43.

Diagnosis. Rostrum long, strongly curved ventrally, extending beyond antenna 1 peduncular article 1. Pereonites 3-7, pleonites 1-3 and urosomites 1-2 with blunt, posteriorly directed, mid-dorsal carinae, those of pereonites 5-7, pleonites 1-3 and urosomite 1 distinctly cleft into anterior and posterior teeth; carinae on pereonites and pleonites 1-2 laterally excavate and sculptured (as in Fig. 27c). Pereonites 5-7, pleonites 1-3 and urosomite 1 with dorsolateral teeth. Pleonites 1-3 and urosomite 1 each bear one additional lateral protrusion anteriorly. Coxae 1-3 narrowly subrectangular with anteroventral corners rounded, posteroventral corners

angular. Propodi of both gnathopods expanded distally, with serrate palm, dactyli with short setae on inner curvature. Coxa 4 ventral margin broadly quadrate, posteroventral corner slightly produced. Coxa 5 posterior margin bluntly produced. Coxa 6 with rounded hump on lateral surface. Coxa 7 tapering posteriorly. Posterior margin of basis 5 with short rounded proximal lobe. Basis of pereopods 6-7 proximal process successively enlarged, producing incised appearance. Telson cleft one fourth.

Size. Female and male 35 mm.

Remarks. *Epimeria rimicarinata* is most similar to *E. georgiana* in having blunt mid-dorsal carinae and ventral margin of coxa 4 truncate and posteroventral corner produced. Different from *E. georgiana* the dorsal carinae are notched creating bilobed carinae in *E. rimicarinata*. The latter species also bear posterolateral teeth on pereonites 5 to urosomite

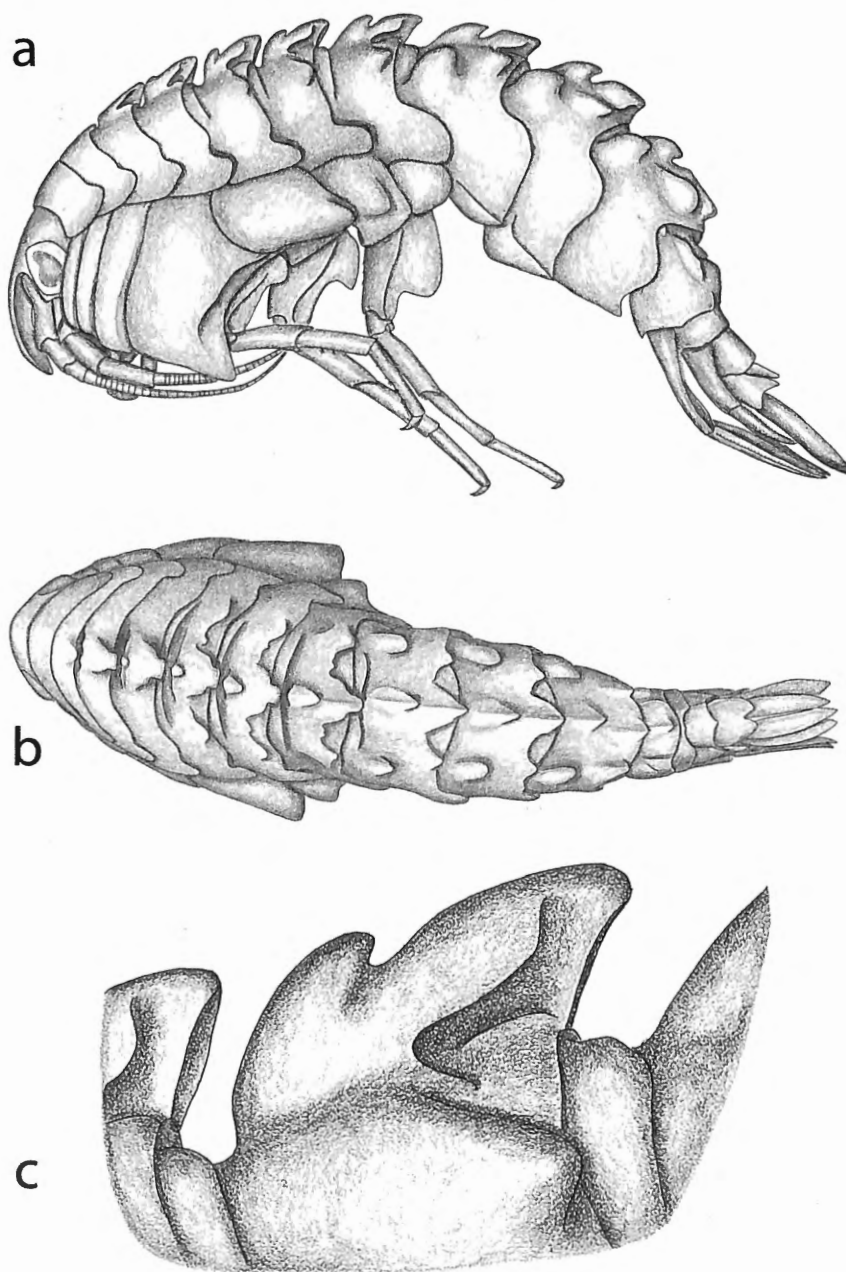


Fig. 27a-c. *Epimeria rimicarinata*. a) left lateral view; b) dorsal view; c) detail of sculptured dorsal carina of pereon segment.

1 and additional posterolateral protrusions on pleonites 1 to urosomite 1 anteriorly. The posteromarginal pointed processes of bases 5-6 are directing ventrally in *E. georgiana*, but are weakly developed on basis 5 and horizontal on basis 6 in *E. rimicarinata*.

Type locality. Ross Sea: 72°32'S 171°26'-28'E.

Distribution. Ross Sea.

Depth range. 337-474 m.

without tooth, only posterodistal angle pointed.

Size. Female 19-45 mm, male 22-26 mm.

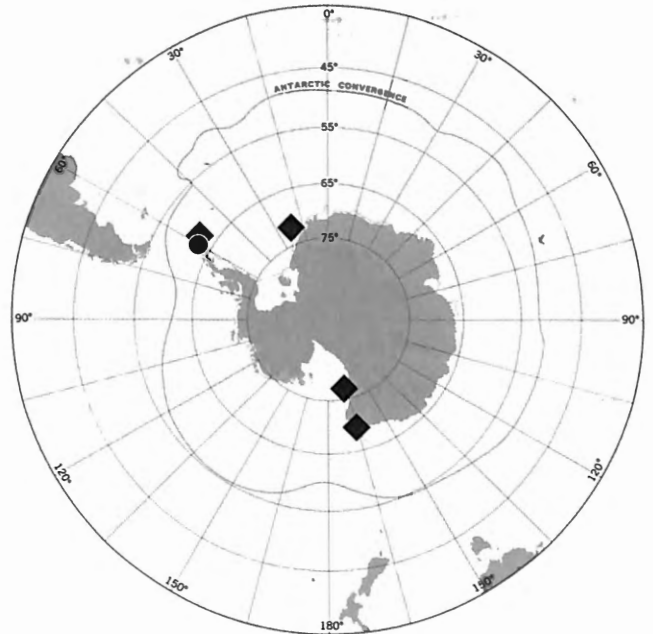
Remarks. There seems to be some variability of the dorsal armature in this species. In the type material the keel of the pleonites is only well developed on segment 3, but

***Epimeria robusta* K.H. Barnard, 1930**

(Fig. 28a-b, Colour plate 1g, Map 14: rhomb)

References and synonymy. De Broyer *et al.* 2007: 43.

Diagnosis. Body robust. Posterior margin of pereonites 5-6 with small medial protrusion, pereonite 7 with shallow keel. Pereonite 7 and posterior margins of pleonites 1-2 in lateral view with tooth-like elevation. Pleonites 1-3 with mid-dorsal keel, pleonite 3 and urosomite 1 with pointed tooth. Urosomite 3 with shallow mid-dorsal keel. Pereopod coxa 1-3 tapering distally, apically rounded. Propodus of gnathopods 1-2 expanded distally, with well developed palm. Coxa 4 very large, with wide posteroventral angle projecting somewhat ventrally. Basis 5 with posteromarginal tooth. Basis 6 with similar tooth but larger. Basis 7 widened proximally, but



Map 14. *Epimeria robusta*: rhomb; *Epimeria vaderi*: circle.

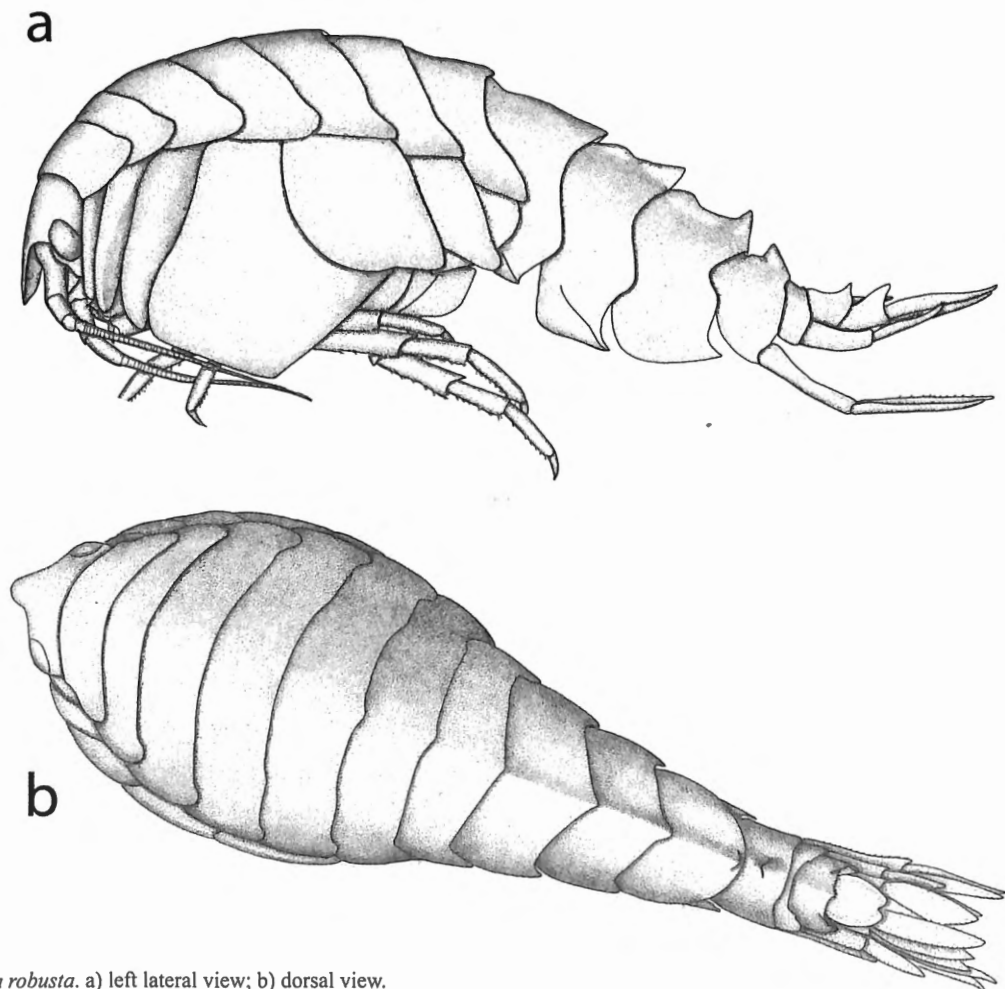


Fig. 28a-b. *Epimeria robusta*. a) left lateral view; b) dorsal view.

very weak and rounded on segments 1-2, and the posterior margin of pleonite 1 is drawn out to a tooth. Also the teeth on pleonite 3 and urosomite 1 are rather short compared with the redescribed material. A tooth is also lacking on the posterior margin of pleonite 1 of a specimen collected close to Elephant Island.

Type locality. Ross Sea: McMurdo Sound.

Distribution. Ross Sea; South Shetland Islands; Weddell Sea.

Depth range. 82-2000 m.

***Epimeria rubriques* De Broyer & Klages, 1991**

(Fig. 29a-b, Colour plate 2a, Map 7: circle)

References and synonymy. De Broyer *et al.* 2007: 44.

Diagnosis. Head with large, flexed rostrum, almost twice as long as head, reaching to the distal end of the second peduncular article of antenna 1; eyes oval; ocular lobe of head pointed or with small notch; anteroventral corner produced, subacute.

All pereonites and pleonites 1-2 with long narrow, apically blunt, mid-dorsal process, increasing in length from the first to the fifth segment. Pleonite 3 with wide triangular mid-dorsal tooth; on pleonites 1-3 the front base of the process marked with a rounded protuberance; pereonites 5-7 and pleonites 1-3 with slightly produced dorsolateral tubercle, weakly increasing in size from pereonites 5 to pleonite 3. Urosomite 1 slightly longer than urosomites 2-3 combined, with medial hump, weak lateral tubercle and dorsolateral antero-posterior blunt ridge; urosomite 2 shortest and smooth; urosomite 3 with a low mid-dorsal carina ending in a triangular posterior projection. Coxae 1-3 not acute distally, with dorsoventral ridge on lateral surface, anteroventral angle broadly rounded, posteroventral angle subacute, gnathopods with wide palm region, inner curvature of dactylus bordered with short spines. Coxa 4 ventrally broad, posteroventral angle acute, sharply ridged close to posteromarginal excavation. Coxa 5 with very long acute posterior process. Coxa 6 with strong blunt central tubercle. Coxa 7 with rounded posterior margin. Bases 5-7 with strong ridge on lateral surface. Basis 5 posterior margin with a proximal subacute lobe, and distal lobe. Basis 6 wider

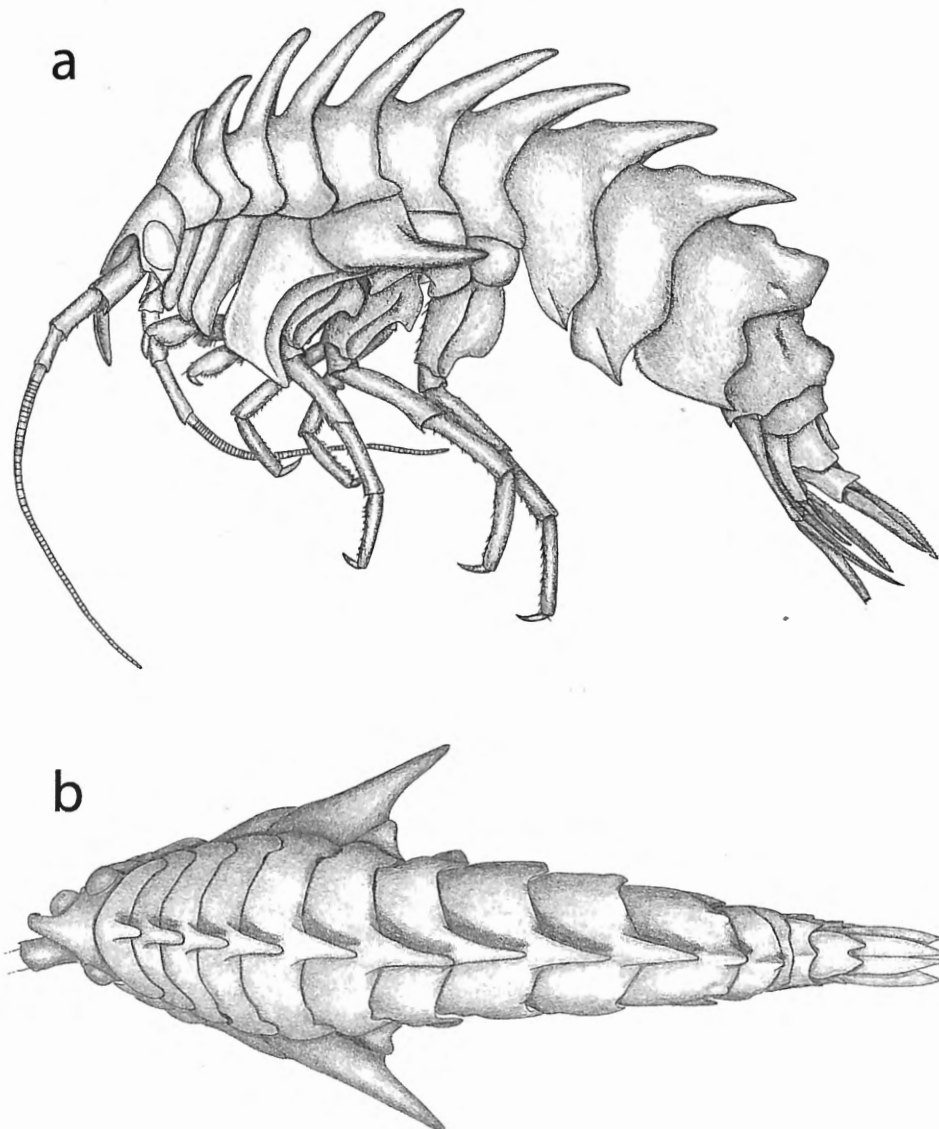


Fig. 29a-b. *Epimeria rubriques*. a) left lateral view; b) dorsal view.

than on preceding leg, posterior margin with proximal acute process. Basis 7 with distal posteromarginal excavation. Telson notched 1/5.

Size. Female 18-69 mm, male 15-51 mm.

Remarks. *E. rubriques* is similar to *E. macrodonta* and *E. similis*. From these species it can be distinguished by: the long upright processes on all pereonites (vs. wanting carinae on pereonite 1 or 2); the rounded protuberance on coxa 6 (vs. acute tooth); the strongly excavate posterior margins of bases 5-7 (vs. weak excavation); short distal teeth on peduncular articles 1-2 of antenna 1 (vs. long, strongly projecting teeth).

Type locality. Weddell Sea: 72°35'S 18°07'W.

Distribution. Weddell Sea.

Depth range. 254-1030 m.

prominent, ocular lobe with short protrusion, anteroventral corner pointed. Pereonites 1-2 without dorsal carinae, but with one small laterodorsal tooth on both sides of each segment (sometimes minute on pereonite 1); dorsal carinae begin on pereonite 3 with a small tooth, increasing in length on subsequent pereonites and pleonites 1-2, all passing well beyond each segmental posterior margin; the anterior edge of each carina sharp and narrow, widened posteriorly, seen from posteriorly the carinae are excavate; laterodorsal teeth rounded on pereonite 3, but pointed on following pereonites and pleonites; dorsal carina on pleonite 3 depressed in lateral view, not much passing beyond posterior segmental margin and not excavate posteriorly; posterodistal corners of all three pleonite epimera produced and pointed. Urosomite 1 longest, with mid-dorsal pointed process. Urosomite 2 shortest, in some specimens with small, pointed, lateral posteromarginal processes. Urosomite 3 with inconspicuous mid-dorsal shallow keel and laterodorsal ridges which are drawn out into a acute tip posteriorly. Coxae 1-4 rounded anteriorly and excavate posteriorly, pointed ventrally, lateral surface with sharp ridge. Propodus of gnathopods 1-2 slender, palm narrow and oblique, dactylus with short spines on inner curvature. Coxa 4 with a pointed (in some specimens inconspicuously rounded) process at the dorsal region of the semicircular ridge,

Epimeria similis Chevreux, 1912a

(Fig. 30a-b, Colour plate 1e, Map 11: circle)

References and synonymy. De Broyer *et al.* 2007: 44.

Diagnosis. Head with narrow, moderately flexed rostrum, about the length of the head or slightly longer, eye large and

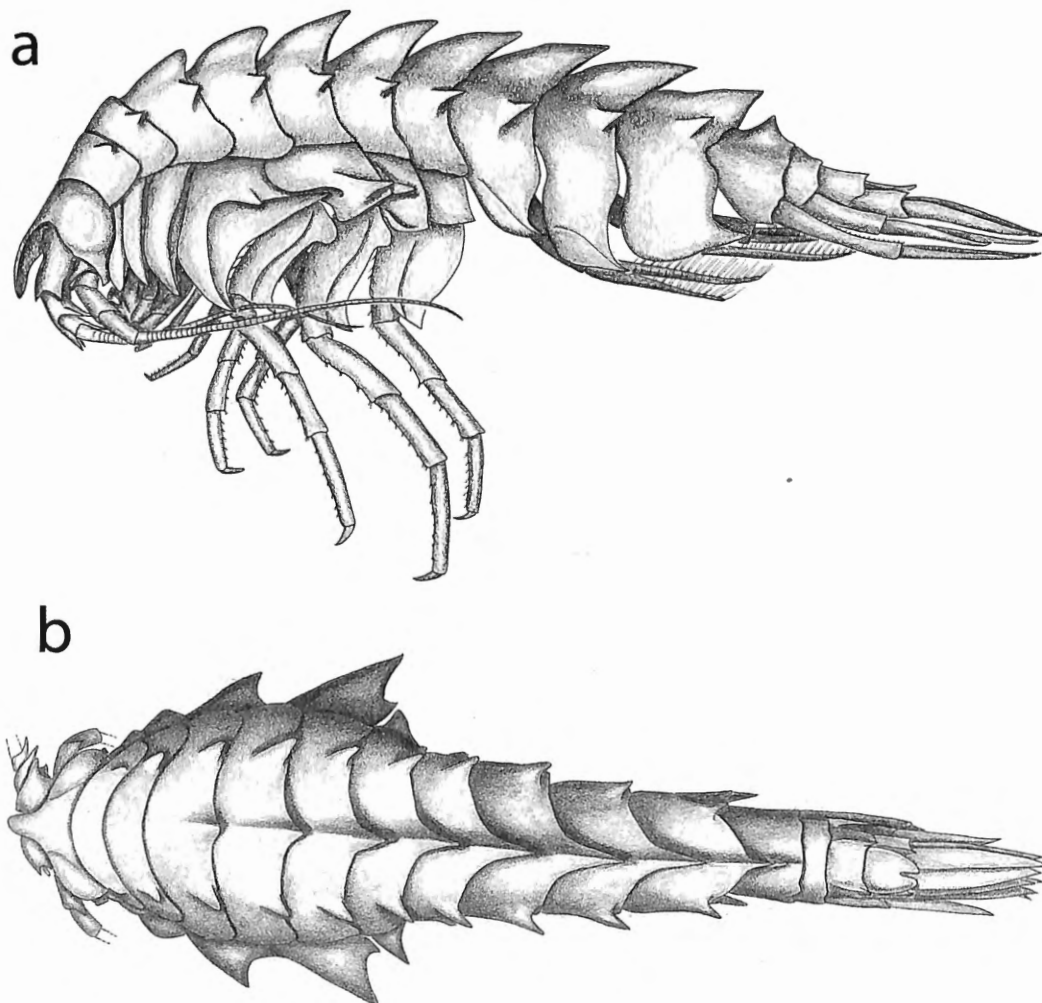


Fig. 30a-b. *Epimeria similis*. a) left lateral view; b) dorsal view.

which flows into a pointed posteromarginal projection. Coxa 5 on lateral surface with long wing-like acute process. Coxa 6 with similar, but shorter process, rounded lobe ventrally. Posterodistal angle of coxa 7 pointed. Basis 5 with rounded posterobasal lobe and acute posterodistal process, surface with sharp ridge. Basis 6 of similar shape, but somewhat wider. Basis 7 sinuous posteromarginally with pointed posterodistal angle. Telson notched 25-30%.

Size. Female 14-48 mm, male 12-22 mm.

Remarks. There seems to be some variability within this species comparing specimens from the Antarctic Peninsula and the Weddell Sea. The population from the Antarctic Peninsula has an only inconspicuously rounded process on the surface of coxa 4, whereas it is rather long and pointed in the Weddell Sea specimens; the dorsolateral processes on pereonite 1 are inconspicuous swellings in the Weddell Sea material, but rounded teeth in the specimens collected at the Antarctic Peninsula; second urosomite with 2 lateral posteromarginal teeth versus smooth at the Weddell Sea animals. In a few specimens from the Antarctic Peninsula the first pereonites were lacking any carinae and pereopod coxa 1 was not pointed but rather wide.

Epimeria similis resembles *E. macrodonta* very much. From this species *E. similis* can be differentiated by the lack of a mid-dorsal carina on pereonite 1, posterolateral teeth on pereonite 2, short process on the lateral face of pereopod 4 coxa (vs. long), and the rostrum that is not much longer than the head (vs. twice the head length). *Epimeria similis* is matching *E. loricata*, not an Antarctic species though, in the dorsal armature. However, there are not only one row of dorsolateral teeth on the pleonites 1-3 of *E. loricata*, but numerous teeth, the carinae are rounded apically, coxae 5-6 are without protrusions posteromarginally, and the rostrum surpasses peduncular article 3 of antenna 1.

Type locality. South Shetland Islands: King George Island.

Distribution. Danco Coast; Palmer Archipelago; South Shetland Islands; Bransfield Strait; Weddell Sea.

Depth range. 30-620 m.

Epimeria vaderi Coleman, 1998b

(Fig. 31a-b, Map 14: circle)

References and synonymy. De Broyer *et al.* 2007: 45.

Diagnosis. Cuticle pitted; head with long flexed rostrum and large ovoid eyes, anterior head margin sinuous, pointed anteroventrally. Pereonite 2 shortest. Pereonite 4 subequal to pereonites 1-2 combined. Dorsal carinae inconspicuously starting on pereonite 4, becoming more distinct and narrower on posterior segments, strongly curved posteriorly and overreaching the following segment, largest on pleonites 1-2, but shorter on pleonite 3. Pleonites 1-2 with 2 pairs of additional small (3rd pleonite with 1 pair) teeth laterally guarding the dorsal carina on both sides. Epimeral plates 1-2 with lateroventral ridge, epimeral plates 1-3 posterolateral margins roundly produced and with acutely produced

anteroventral angle. Urosomite 1 longest, with short, narrow upward pointed process. Urosomite 2 shortest. Urosomite 3 with dorsolateral and a medial ridge, posterior margin excavate. Antenna 1 peduncular article 1 longer than articles 2-3 combined, with 4 teeth on distal margins of articles 1-2; article 3 drawn out into long process, almost reaching end of 1st flagellar article. Antenna 2 peduncular articles 1-3 condensed to short complex; article 4 longest, with 2 processes distally; article 5 three-quarters the length of article 4. Gnathopod 1 coxa strongly tapering distally and sharply pointed with ridge on lateral face, anterior margin weakly convex, posterior margin slightly excavate; carpus 145% of propodus; propodus narrower than carpus with spiniform setae near serrate palm region; dactylus with dentate inner curvature and 2 minute setae proximal to nail. Gnathopod 2 all articles longer compared to gnathopod 1; coxa also wider, with ridge on lateral face and convex anterior margin; carpus 155% of propodus; propodus narrower than that of gnathopod 1, with spiniform setae near serrate palm region. Coxa 3 similar shaped as that of gnathopod 2, but wider and anterior margin more strongly convex, lateral face with ridge. Coxa 4 longest and widest, with strongly rounded anterior margin, posterodistal angle subacutely produced, strong lobe-like subacute posterior process, which is partially hidden under coxa 5, strong ridge close to posteroventral excavation. Pereopod 5 coxa parallelogram-shaped, wider than long, almost as wide as coxa 4, convex anteromarginally, drawn out into subacute posteroventral lobe, shallow ventral lobe; basis expanded distally, only weakly produced ventrally, with rounded proximal posteromarginal lobe and posteroventral pointed process; ridge on lateral face, setal group anteroproximally. Pereopod 6 coxa anterior margin oblique and excavate, with ventrally rounded lobe, posteriorly produced with acutely pointed process; basis of similar shape than that of pereopod 5, but slightly longer and posterior margin between proximal and distal processes somewhat produced. Pereopod 7 coxa subquadrate; basis wider than coxa and wider than those of pereopods 5-6; posterior margin rounded and produced ventrally, overreaching ischium. Uropod 1 peduncle subequal to rami, lateral margin with shorter spiniform setae, on medial margin only few setae proximally and 1 mediobasal seta; rami subequal. Uropod 2 peduncle slightly expanded distally, outer ramus shortened (approx. 60% of inner ramus). Uropod 3 peduncle with spiniform setae on medial margin, laterodistal angle pointed; outer ramus somewhat shortened. Telson tapering distally; with terminal notch (28% of total length); dorsal surface with microtrichs.

Size. Ovigerous female 19 mm.

Remarks. This species bears some superficial resemblance to *Metepimeria acanthurus* Schellenberg, 1931a in the similar dorsal armature. However, compared with *E. vaderi* the maxilliped palp of *M. acanthurus* is only 3-articulate (vs. 4-articulate), pereopod coxa 1 is shortened (vs. normal), coxa 6 is rounded posteriorly (vs. drawn out), bases 5-7 are tapering distally (vs. expanded distally) and antenna 1 peduncular articles 1-3 are smooth apically (vs. dentate). *Epimeria robusta* has differently shaped dorsal carinae, a strongly widened coxa 4 with a convex posteroventral margin

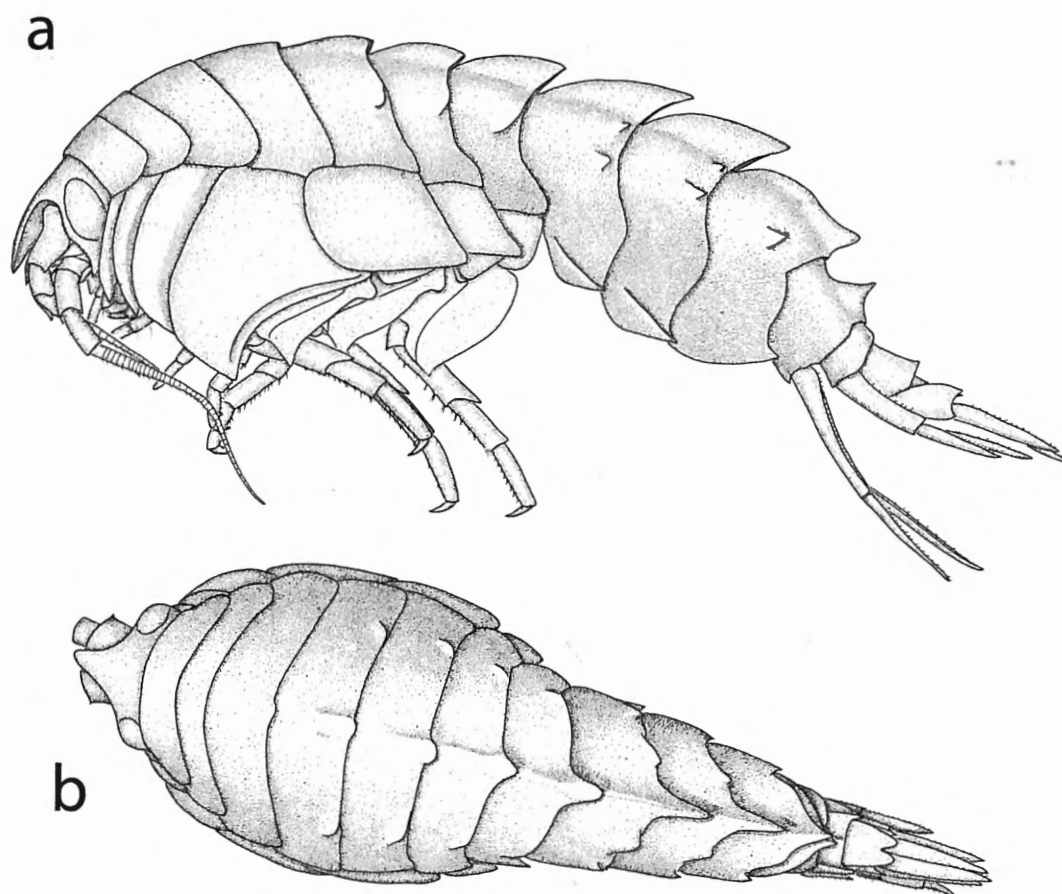


Fig. 31a-b. *Epimeria vaderi*. a) left lateral view; b) dorsal view.

(vs. narrower and concave margin) and the posterior margins of bases 5-6 are both deeply notched and have a pointed ventrally directed lobe and narrow apices (vs. excavate with distal pointed process). *Epimeria puncticulata* and *E. vaderi* appear to be closely related as, besides the pitted cuticle, they have similarly shaped coxa 4 and bases 5-7, as well as the dentated distal margin of the peduncular article 1 of the first antenna (Bellan-Santini, 1972a). *Epimeria puncticulata*, however, has inconspicuous carinae on the pleosome, also additional teeth guarding the carinae on the pleon are wanting (vs. strong carina on pereonite 5 to urosomite 1 with lateral teeth on pleosome). *Epimeria puncticulata* has coxae 1-3 apically rounded with straight posterior margins (vs. pointed and excavate); coxae 5-6 rounded posteriorly (vs. drawn out and pointed); non or weak dentation on 4th maxilliped palp article (vs. strong teeth); slender gnathopodal propodi (vs. wider with stronger palm). Compared with *E. vaderi*, in *E. annabellae* only pleonite 3 and urosomite 1 are carinate, coxa 4 is much wider, coxae 5-6 are posteriorly rounded and bases 5-6 are not cuspidate. *Epimeria monodon* only has a carina on pleonite 3, pereopod coxa 1-3 are rounded apically (vs. pointed), coxa 6 is rounded (vs. pointed) and bases 5-6 are convexly rounded (vs. excavate) posteromarginally.

Type locality. Antarctic Peninsula: 61°03.8'S 54°37.6'W.

Distribution. Only known from type locality.

Depth range. 332 m.

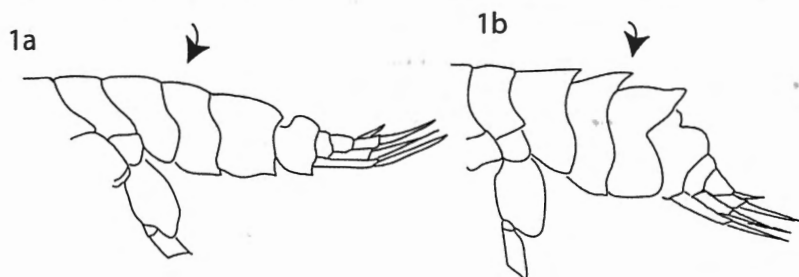
Epimeriella Walker, 1906b

Type-species. *Epimeriella macronyx* Walker, 1906b

Diagnosis (after Barnard & Karaman, 1991). Body poorly armed, almost smooth. Antenna 1 peduncular article 2 shorter than 1. Mouthparts projecting quadrately, but tending to be foliaceous as in Stilipedidae. Upper lip incised; epistome not very broad, gibbous. Mandibular incisor ordinary, or broad, toothed; setal row long, molar absent or simple, conical or laminar. Lower lip inner lobes absent, outer gaping. Maxilla 1 inner plate slightly broadened, palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae and short and stout, outer plate extended, both separated at base. Maxilliped inner plate shorter and narrower than outer plate, latter elongate; palp article 2 narrow and medially unproduced; palp article 4 well developed, serrate. Coxae 1-4 progressively longer; coxa 1 either weakly acuminate or blunt and in some species becoming weakly expanded basally, coxae 4-5 forming ventral arc; coxa 4 polycuspidate. Gnathopods alike, carpus and propodus ordinary, both gnathopods weakly subchelate. Telson incised or cleft.

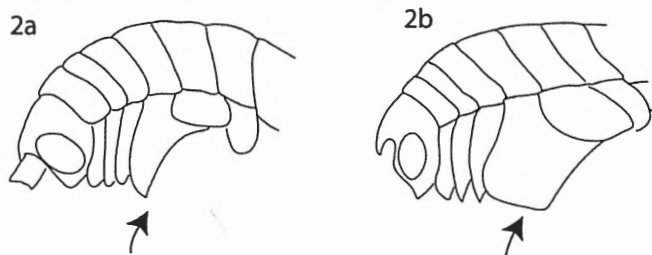
Key to the species of *Epimeriella*

- 1a. Pleonites 1-3 dorsally smooth, only shallow keel on pleonite 3 2
 1b. Pleonites 1-3 with dorsal carinae 3



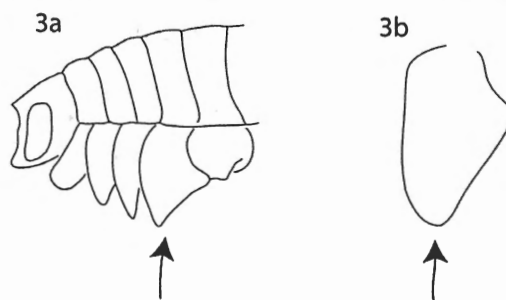
- 2a. Coxa 4 ventrally pointed
 2b. Coxa 4 ventrally broad and truncate

Epimeriella macronyx
Epimeriella walkeri



- 3a(1). Coxa 4 wide, ventrally pointed
 3b. Coxa 4 slender, ventrally rounded

Epimeriella scabrosa
Epimeriella truncata

*Epimeriella macronyx* Walker, 1906b

(Fig. 32a-b, Map 15: rhomb)

References and synonymy. De Broyer *et al.* 2007: 45.

Diagnosis. Head with minute rostrum; eyes large, produced; anteroventral corner produced rounded. Pereon smooth. Pleonites 1-2 smooth and slightly depress dorsally. Pleonite 3 with inconspicuous shallow keel (in large females produced into a tooth); posteroventral corners of epimeral plates forming a right angle or weakly pointed; epimeral plates 1-2 with inconspicuous ridge on ventrolateral surface. Urosomite 1 with mid-dorsal carina posteriorly. Urosomite 2 shortest. Urosomite 3 with a dorsolateral ridge at both sides running into pointed processes. Coxa 1 with anterior margin concave. Apex of coxae 1-3 rounded. Coxa 4 pointed ventrally, posterior margin weakly excavate, surface without ridge or tooth. Coxa 5 rounded posteromarginally, without hump or tooth, only slightly elevated, surpassing pointed proximal posteromarginal process of coxa 4. Coxa 6 posterior margin only weakly convex, angularly lobate ventrally. Coxa 7 small

and round. Basis 5 slender, lateral surface with strong ridge, posterior margin linear, proximally somewhat produced, ventral rounded lobe surpassing posterior half of ischium. Basis 7 with convex posterior margin and ridge on lateral surface, ventral lobe surpassing half of merus. Telson elongate, reaching apex of outer ramus of uropod 2, with shallow notch.

Size. Females 14-28 mm; males 16-22 mm.

Remarks. *Epimeriella macronyx* shows some resemblance to *E. walkeri*. From this species *E. macronyx* is easy to distinguish by coxa 4, which is tapering distally and pointed (vs. ventrally widened and truncate) and the normal sized carpus and propodus on pereopods 5-7 (vs. elongate). The 2 other *Epimeriella* species, *E. scabrosa* and *E. truncata*, differ from *E. macronyx* and *E. walkeri* in having carinate pleon segments 1-3.

Type locality. Ross Sea: Winter Quarters Bay.

Distribution. Antarctic Peninsula; Davis Sea; Ross Sea; South Orkney Islands; South Shetland Islands; Weddell Sea.

Depth range. 0-1200 m.

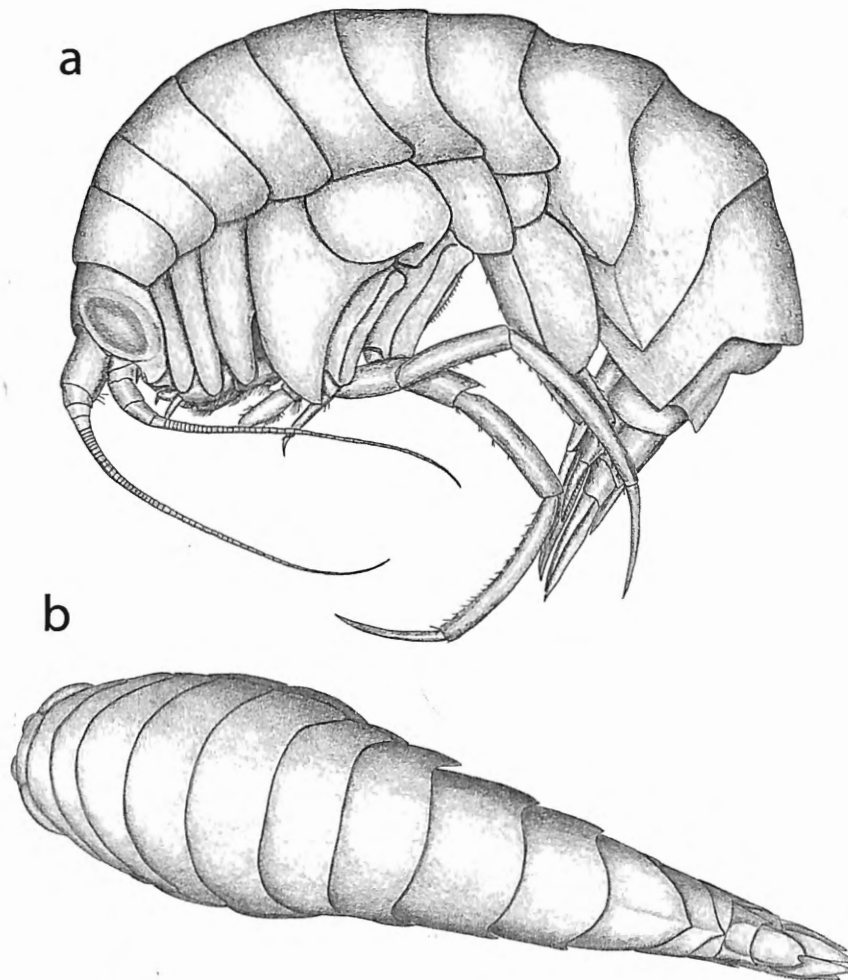


Fig. 32a-b. *Epimeriella macronyx*. a) left lateral view; b) dorsal view.

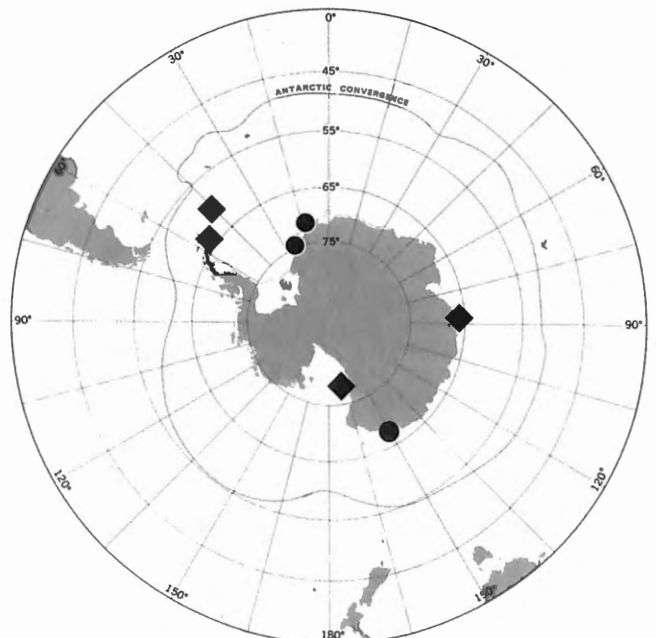
***Epimeriella scabrosa* K.H. Barnard, 1930**

(Fig. 33, Map 15: circle)

References and synonymy. De Broyer *et al.* 2007: 45.

Diagnosis. Head with minute rostrum; eyes large, reniform; anteroventral corner rounded. Pereonites without dorsal or dorsolateral armature; pereonite 2 shortest; posteroventral corner of pereonites 1-4 rounded, that of pereonites 5-7 angular. Pleonites 1-3 with dorsal carinae, that of pleonites 1-2 surpassing posterior margin. Carina of pleonite 3 excavate posteriorly seen from lateral side. Posterior margin of pleonites 1-2 sinuous, ending in pointed posteroventral corner of the epimeral plates, ridges on the lateral surface of epimeral plates 1-2 close to the ventral margin. Posterior margin of pleonite 3 forming a 90 degree angle excavation, posteroventral corner angular. Urosomite 1 longest, with a shallow rounded elevated, sharp mid-dorsal keel. Urosomite 3 with a pair of dorsolateral ridges and a shallow mid-dorsal keel. Coxa 1 distally rounded, anterior margin weakly excavate. Coxa 2 with rounded anterior margin and tapering subacute apex. Coxa 3 pointed ventrally. Coxa 4 rounded anteriorly, pointed ventrally, straight posterior margin, posterior process not closely embedded within coxa 5.

Coxa 5 wider than long, anterior margin rounded, posterior margin straight, transverse fold overlapping proximal region



Map 15. *Epimeriella macronyx*: rhomb; *Epimeriella scabrosa*: circle.

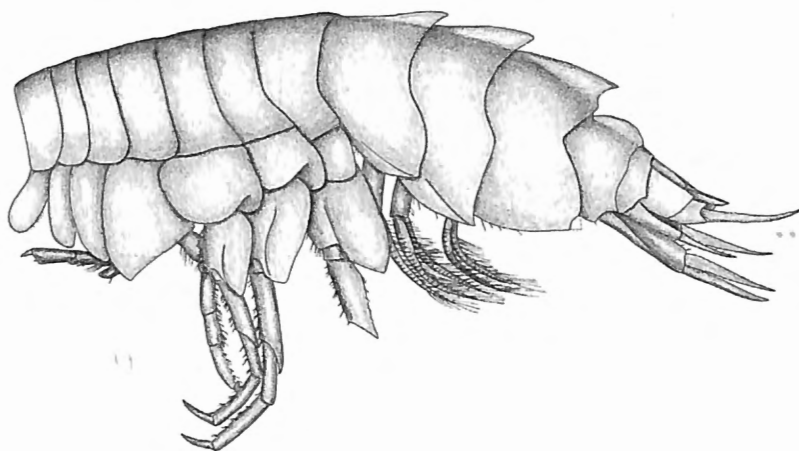


Fig. 33. *Epimeriella scabrosa*. Left lateral view, head missing.

of basis, posterior lobe not expanded ventrally. Coxa 6 with similar fold. Bases 5-6 with linear posterior margin, ridge on lateral surface, ventral lobe surpassing ischium. Basis 7 with rounded posterior margin and subacute distal lobe, surpassing ischium; merus of pereopods 5-7 acutely drawn out posteriorly. Telson, not reaching apex of the outer ramus of uropod 2, notched about one third.

Size. Ovigerous female 14 mm.

Remarks. *E. scabrosa* closely resembles *E. truncata* in the shape of the dorsal carinae on the pleonites, which are lacking in the other *Epimeriella* species. *E. scabrosa* differs in small details from *E. truncata*: the subacute apex of the coxae 3 and 4 (vs. rounded), gnathopods propodus longer than carpus (vs. equal), basis 6 straight posteromarginally (vs. convex), bases 6-7 posterodistal lobe angular (vs. regularly rounded). Future investigations must show if *E. scabrosa* and *E. truncata* are separate species.

Type locality. Oates Coast.

Distribution. Oates Coast; Weddell Sea.

Depth range. 329-366 m.

rounded. Coxa 7 ventrally rounded. Posterior margin of basis 5 linear, that of bases 6-7 convex; anterodistal angles pointed, posterodistal region lobate, rounded. Telson as long as width of basis; broadly notched, inner margin truncate distally and with small notches.

Size. Female 8 mm.

Remarks. *E. truncata* closely resembles *E. scabrosa* in the dorsal carinae on the pleonites, which are lacking in the other *Epimeriella* species. *E. truncata* differs in only small details from *E. scabrosa*: the rounded apex of the coxae 3 and 4 (vs. subacute), gnathopods propodus equal to carpus (vs. longer), basis 6 convex posteromarginally (vs. straight), bases 6-7 posterodistal lobe regularly rounded (vs. angular). Future investigations must show if *E. truncata* and *E. scabrosa* are separate species.

Type locality. 64°00'S 64°30'W.

Distribution. Only known from type locality.

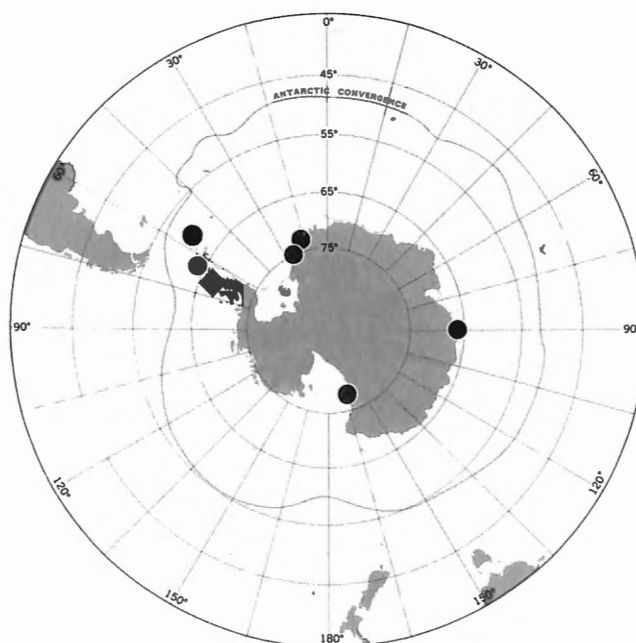
Depth range. 100-382 m.

Epimeriella truncata Andres, 1985

(Fig. 34a-g, Map 16: rhomb)

References and synonymy. De Broyer *et al.* 2007: 46.

Diagnosis. Head with short rostrum, ocular lobe small rounded, anteroventral corner somewhat produced, rounded; eyes large, oval. Pereonites without carination. Pleonites 1-3 with mid-dorsal carinae, dorsal keel on pleonites 2-3 clearer developed compared to pleonite 1. Urosomite 1 with dorsal depression and posteriorly with rounded dorsal keel. Urosomite 3 with weak shallow median keel and dorsolateral ridges that are drawn out posteriorly. Epimeral plates on pleonites 1 and 3 with angular posteroventral corner, that of pereonite 2 with small tooth. Coxa 1 weakly expanded distally with rounded apex. Coxae 2 and 3 tapering distally, gnathopods subchelate, carpus and propodus equal in length. Coxa 4 rounded distally with linear posterior margin. Coxa 5 wider than long. Posterior region of coxa 6 lobate, ventrally



Map 16. *Epimeriella truncata*: rhomb; *Epimeriella walkeri*: circle.

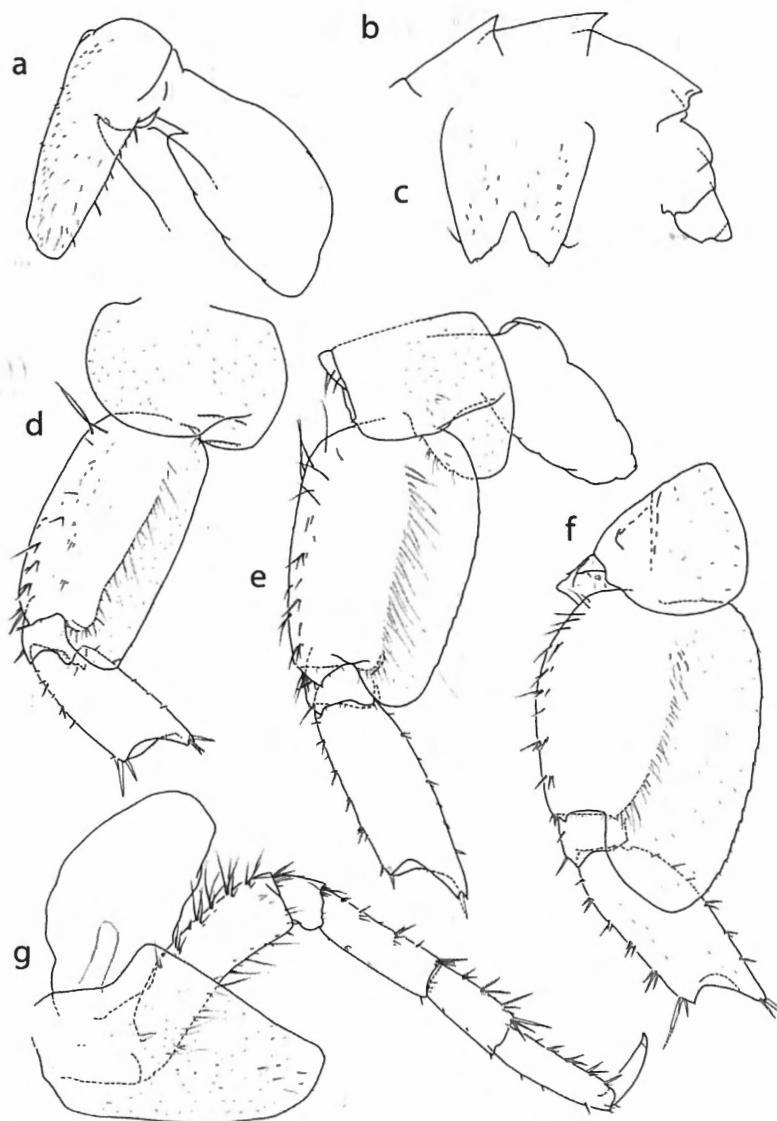


Fig. 34a-g. *Epimeriella truncata*, redrawn after Andres, 1985. a) coxa 3; b) dorsal outline of pleonites 1-3 and urosome; c) telson; d) pereopod 5; e) pereopod 6; f) pereopod 7; g) pereopod 4.

Epimeriella walkeri K.H. Barnard, 1930

(Fig. 35a-b, Colour plate 3a, Map 16: circle)

References and synonymy. De Broyer *et al.* 2007: 46.

Diagnosis. Head with short rostrum; eyes large, oval; anteroventral corner pointed. Pereonites smooth, without carinae. Pleonite 3 with shallow, rounded process posteromarginally; posteroventral corner of epimeral plates 2-3 acutely produced, that of pleonite 1 rounded; ridges on the lateral surface of pleonites 1-2. Urosomite 1 with dorsal hump. Urosomite 2 shortest, Urosomite 3 with dorsolateral ridges, each running into a pointed process posteriorly. Coxa 1 excavate anteromarginally, truncate distally, posteroventral corner pointed. Coxae 2 and 3 tapering distally, apically pointed, gnathopods with very slender propodi and very short palm, dactyli with pectinate inner curvature. Coxa 4 very broad, anteroventral region rounded, produced, covering apex of coxa 3 (sometimes coxae 1-3), ventrally truncate, posteroventral margin straight or weakly sinuous. Coxa 5

wider than long, drawn out posteriorly and rounded. Coxa 6 longer than wide, with transverse ridge on lateral surface. Coxa 7 somewhat tapering distally, rounded. Basis 5 posterior margin straight, posterodistal corner roundly produced. Basis 6 straight or weakly convex posteromarginally; bases 5-6 distally not produced to a lobe. Basis 7 broadest with posterior margin convex, distal lobe strongly produced, pointed apically. Telson moderately incised, lobes of telson rounded, distal lobes of telson not reaching apex of outer rami of uropod 2.

Size. Female 14-29 mm, male 11-14 mm.

Remarks. *Epimeriella walkeri* is unique within the genus. It has coxa 4 enlarged and apically truncate, whereas the other *Epimeriella* species have coxa 4 tapering distally ending in a pointed or rounded apex. The shape of the coxa 4 of *E. walkeri* is similar to that of *Epimeria inermis*. However, between these species are numerous differences which allow rapid identification: rostrum shortened in *E. walkeri*, vs. long in *E. inermis*; pereon and pleon without carination, vs. rounded produced hump-like carinae; coxa 1 excavate

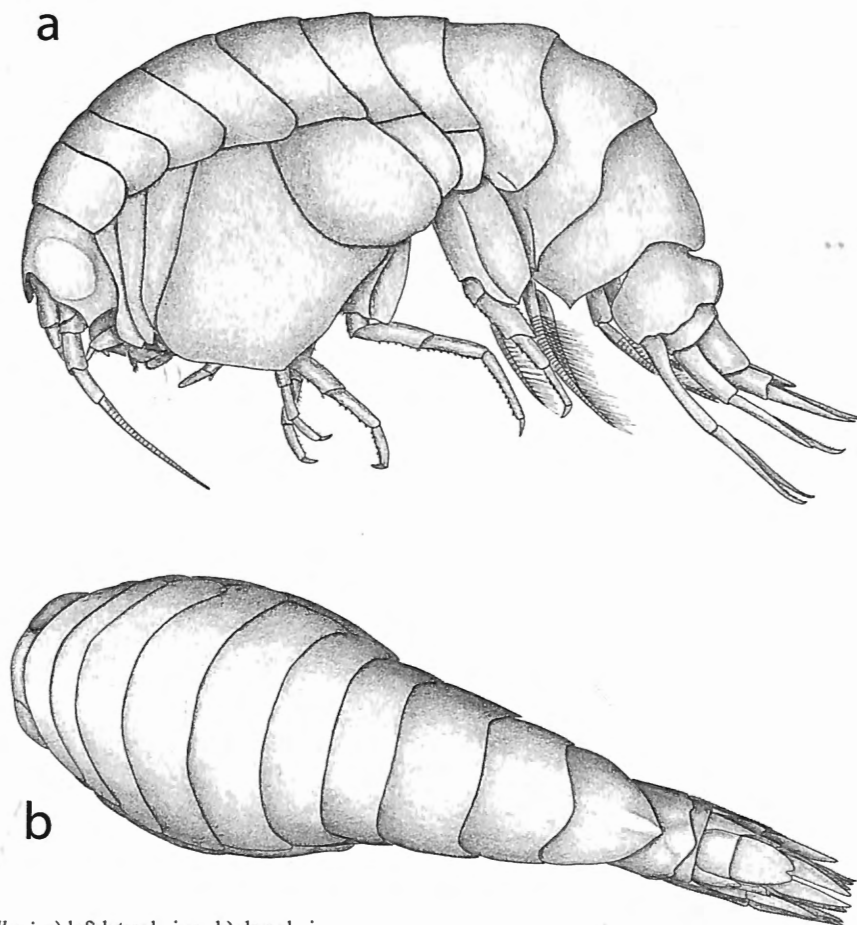


Fig. 35a-b. *Epimeriella walkeri*. a) left lateral view; b) dorsal view.

anteromarginally, vs. linear; coxae 5-6 without hump on lateral surface, vs. hump present; bases 5-6 straight, vs. excavate posteromarginally.

Type locality. Ross Sea: McMurdo Sound.

Distribution. Davis Sea; Palmer Archipelago; Ross Sea; South Shetland Islands; Weddell Sea:

Depth range. 184-928 m.

Metepimeria Schellenberg, 1931a

Type-species. *Metepimeria acanthurus* Schellenberg, 1931a

Diagnosis (after Barnard & Karaman, 1991). Body covered posteriorly with teeth or processes. Antenna 1 peduncular article 2 shorter than 1. Mouthparts projecting quadrately. Upper lip almost entire, not very broad. Mandibular incisor toothed; setal row present; molar broad and blunt, triturative. Lower lip inner lobes absent. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate (? without facial row of setae). Maxilliped (? inner plate shorter and narrower than outer plate, latter elongate; ? palp article 2 narrow and apicomedia unproduced); palp article 4 absent. Coxae 1-4 progressively longer; coxae 4-5 forming ventral arc; coxa 4 long, polycuspidate. Gnathopods alike, carpus and propodus elongate, narrow; both gnathopods simple. Telson incised or cleft.

Metepimeria acanthurus Schellenberg, 1931a

(Fig. 36, Map 1: rhomb)

References and synonymy. De Broyer *et al.* 2007: 46.

Diagnosis. Rostrum as long as head, weakly flexed; eyes moderately large, oval; anteroventral corner with right angle. Pereonites 1-5 without dorsal or dorsolateral armature; posteroventral corner of each pereonite rounded, pereonite 6 with weak dorsal keel posteriorly. Pereonite 7 with shallow carina, slightly depressed, seen from lateral view. Similar carinae on pleonites 1-3, that on pleonite 3 not curved posteriorly; close to posterior margin of pereonite 7 to pleonite 3 a dorsolateral tooth on both sides. Pleonites 2-3 with additional dorsolateral ridges; posteroventral angle of epimeral plate 1 rounded, that of pleonites 2-3 pointed. Lateral surface of epimeral plates of pleonites 1-2 ridged. Urosomite 1 with pointed upright dorsal tooth. Urosomite 3 with dorsolateral ridges drawn out posteriorly and shallow medial keel. Coxa 1 tapering distally with pointed apex, anterior margin slightly concave. Coxa 2 distally rounded, gnathopods with very slender propodi, without palm, dactyli spinose at inner curvature. Coxa 3 broader than coxa 2, anterodistal angle rounded, posterodistal corner angular. Coxa 4 largest, anterior margin slightly excavate, distally truncate, posterodistal margin concave, close to this margin with a ridge on the lateral surface of the coxa. Coxa 5

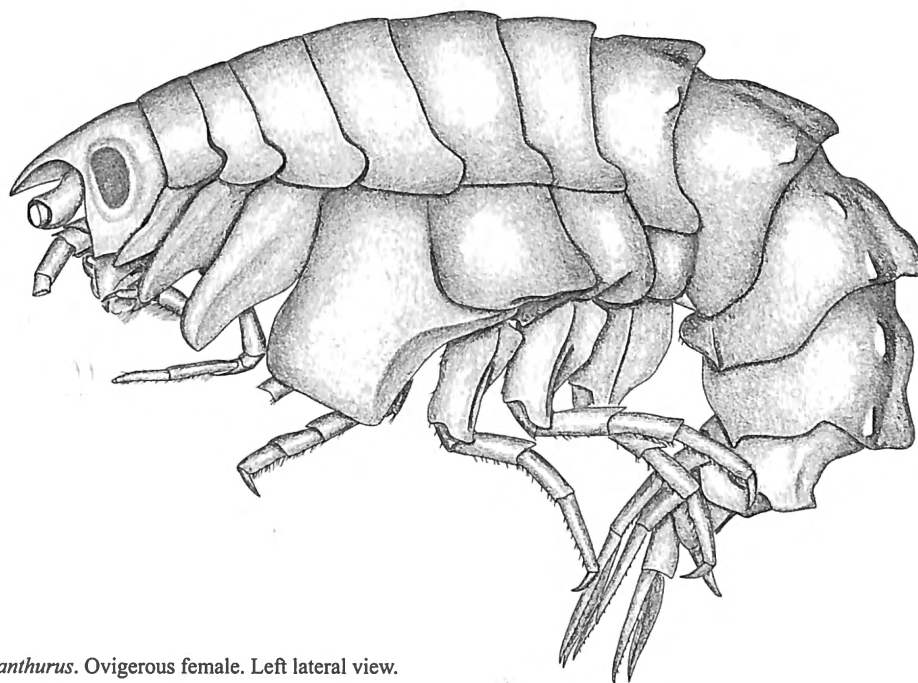


Fig. 36. *Metepimeria acanthurus*. Ovigerous female. Left lateral view.

subacute posteriorly, with lateral fold that encloses posterior process of coxa 4. Coxa 6 lateral surface produced, posterior margin rounded. Coxa 7 rounded without hump. Bases 5 and 6 with 2 ridges on lateral surface, proximal posterior margin expanded, posterodistal angle lobate and angular. Basis 7 with ridge on lateral surface and rounded posterior margin, which is distally slightly excavate, distal lobe acute. Mouthparts as typical for *Epimeria* except for 3-articulate maxilliped palp. Telson broadly notched with distally rounded lobes.

Size. Female 21–22 mm.

Remarks. *Metepimeria acanthurus* is somewhat similar to *Epimeria intermedia*. Both species have shallow dorsal carinae and dorsolateral ridges on pleonites. However, the carinae start on pereonite 3 in *E. intermedia*, and on pereonite 7 in *M. acanthurus*. Coxae 1–3 are pointed in *E. intermedia*, but only coxa 1 is apically acute in *M. acanthurus*. Bases 5–7 differ in these species: *M. acanthurus* has the posterodistal corner ventrally lobate, and the bases 5–6 without proximal narrow rounded process. The examination of the mouthparts exhibit the apomorphy for *Metepimeria*, the reduced 4th article of the maxilliped palp.

Type locality. Magellan area: Puerto Condor, Harris Bay.

Distribution. Falkland Islands; Magellan area.

Depth range. 27–494 m.

Uschakoviella Gurjanova, 1955b

Type-species. *Uschakoviella echinophora* Gurjanova, 1955b

Diagnosis. Body covered with articulate spines. Antenna 1 peduncular articles 1–2 subequal. Mouthparts projecting conically. Upper lip incised, not very broad. Mandibular

incisor ordinary, toothed; setal row weak; molar broad and blunt, triturative. Lower lip inner lobes absent. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate narrower but as long as outer plate, latter elongate; palp article 2 narrow and apicomediaally unproduced; palp article 4 well developed. Coxae 1–4 progressively longer; coxae 4–5 forming ventral arc; coxa 4 scarcely polycuspidate. Gnathopods alike, carpus elongate, propodus shorter, both narrow; both gnathopods scarcely chelate. Telson incised or cleft.

Uschakoviella echinophora Gurjanova, 1955b

(Fig. 37, Map 17: circle)

References and synonymy. De Broyer *et al.* 2007: 47.

Diagnosis. Head with small blunt forward pointing rostrum, anteroventral corner slightly produced; row of spines running from top of head down through eye, a few spines below eye; eyes of medium size, bulging. Each pereonite densely covered with long, slender, spines, except for anterior region of pereonites 2–7. Pleonites 1–3 with the same dense spination, additionally each pleonite bearing a prominent backward-inclined dorsal spine or tooth; epimeral plates 1–2 tapering distally, with rounded or subacute ventral margin, epimeral plate 3 ventrally rounded, all epimeral plates not produced posteriorly. Urosomites 1–3 with shorter teeth compared to preceding segments; urosomite 1 with sharp dorsal tooth directed slightly forward. Coxa 1 tapering distally with pointed apex and anteriorly directed tip, posterior margin convex, teeth on anterior region of the surface, directing anteriorly. Coxa 2 of similar shape, but longer and with more spines, both pairs of gnathopods with slender, distally

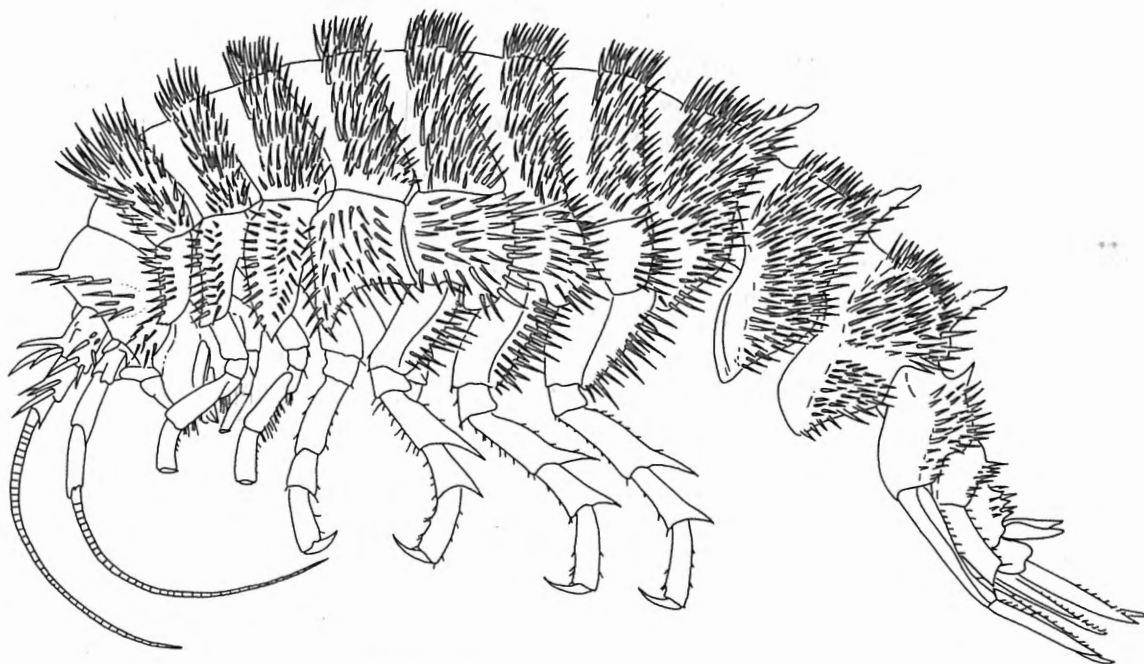


Fig. 37. *Uschakoviella echinophora*, redrawn from Barnard & Karaman, 1991. Left lateral view.

slightly expanded propodi. Coxa 3 tapering to an acute point, posterodistal margin with several sort rounded protrusions. Anterior margin of coxa 4 straight or slightly concave, posteroventral margin excavate, anterodistal corner pointed, teeth on lateral surface pointing ventrally. Coxa 5 rounded anteriorly, posterodistally lobate. Anterior margin of coxa 6 excavate, posterodistally lobate. Coxa 7 with teeth only posterior surface, anteroventral margin excavate. Bases 5-7 subrectangular with teeth close to posterior margin; merus distally expanded and acutely drawn out posteriorly, carpus distally expanded. Telson broadly notched and apically slightly expanded, sometimes with teeth on dorsal surface.

Size. Female 30 mm, male 8 mm.

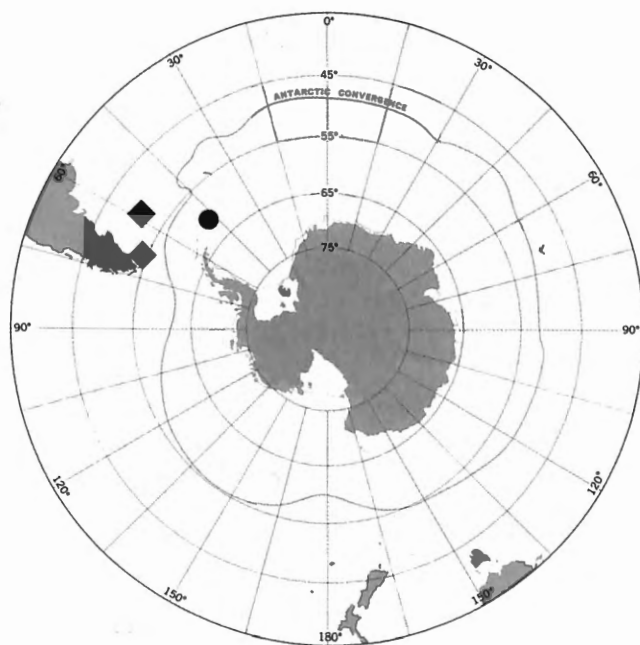
Remarks. At the first glance *U. echinophora* resembles very much the iphimeriid *Echiniphimedia hodgsoni* (Walker, 1906c). The latter species differs from *U. echinophora* in the following: teeth on body surface not articulate; anteroventral corner of head deeply notched; mandible without molar; no teeth on dorsal side of the head; no long dorsal carinae on pleonites; posterodistal corner of epimeral plates 2-3 produced and pointed, additional long process on lateral posterior margin of pleonite 3 and the typical arrangement of iphimeriid chelate gnathopods (first pair short and sparsely setose and second pair elongate and strongly setose).

The species has been recorded only once in the Antarctic by Watling & Holman (1981) and the specimen appears to be lost. So it is impossible to confirm the determination.

Type locality. North Pacific: east of Sturup Island, northernmost of Kuril Island.

Distribution. North Pacific; West Antarctic: South Orkney Islands, 59°48'S 45°06'W.

Depth range. 54-2550 m.



Map 17. *Metepimeria acanthurus*: rhomb; *Uschakoviella echinophora*: circle.

IPHIMEDIIDAE Boeck, 1871b

Diagnosis. (after Coleman & Barnard, 1991b). Body compressed, with dorsal teeth (lacking in *Iphimedia gibba* and *Pariphimedia normani*). Rostrum well developed. Antennae elongate, flagella with 5+ articles; accessory flagellum 0-2 articulate. Mouthpart field conically developed. Epistome and upper lip highly variable, broad or narrow, short or long, incised or entire. Incisor of mandible variable, broad and toothed in transition to needle shaped or blunt, untoothed, callused or hallowed out; setal row absent; molar absent or reduced (*Stegopanoploea* with conical molar); palp always present, 3-articulate. Lower lip without inner lobes, with or without inner notches. Inner plate of maxilla 1 ordinary or minute, usually medially setose; outer plate oblique, normally spinose or reduced (*Nodotergum*); palp large or small, 1-2 articulate. Inner plate of maxilla 2 rarely with facial setae. Palp of maxilliped 3-4 articulate, article 2 produced medially in several genera. Coxae 2-4 more or less acuminate, ventral margins fitting normal ventral parabolic curve of anterior coxae; coxae 1 and 4 not shortened, coxa 1 variable, broad or narrow, acuminate or not, coxa 4 with large posteroventral lobe, coxa 5 shorter than 4. Gnathopods feeble and with

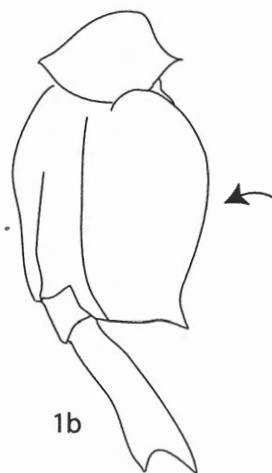
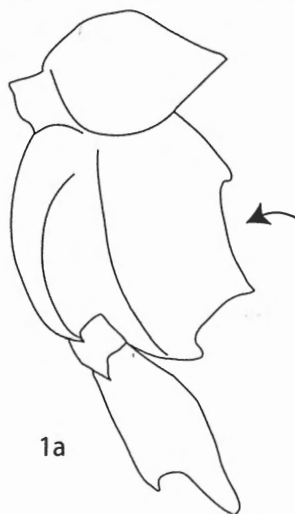
elongate merus and propodus; gnathopod 2 longer and stouter than gnathopod 1; both gnathopods propodochelate or gnathopod 1 simple in *Nodotergum*, merus and carpus not produced. Bases 5-7 often with posterior cusps or teeth. Epimeral plate 3 usually with 2 large posterior cusps. Urosomites free. Uropods 1-3 biramous. Rami of uropod 3 longer than peduncle, flattened, lanceolate, 1-articulate. Telson entire or weakly incised, generally not longer than peduncle of uropod 3.

List of genera. *Iphimedia* Rathke, 1843 (type genus) (= *Microcheles* Krøyer, 1846; = *Panoploea* Thomson, 1880; = *Iphimediopsis* Della Valle, 1893; = *Cypsiphimedia* K.H. Barnard, 1955); *Anchiphimedia* K.H. Barnard, 1930; *Anisophimedia* Karaman, 1980b; *Coboldus* Krapp-Schickel, 1974; *Echiniphimedia* K.H. Barnard, 1930; *Gnathiphimedia* K.H. Barnard, 1930; *Iphimediella* Chevreux, 1911c; *Labriphimedia* K.H. Barnard, 1931 (= *Maoriphimedia* Hurley, 1954); *Maxilliphimedia* K.H. Barnard, 1930; *Nodotergum* Bellan-Santini, 1972a; *Paranchiphimedia* Ruffo, 1949; *Parapanoploea* Nicholls, 1938; *Pariphimedia* Chevreux, 1906a; *Pseudiphimediella* Schellenberg, 1931a; *Stegopanoploea* Karaman, 1980b.

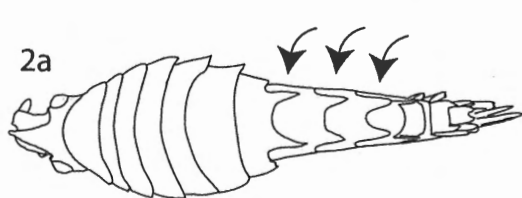
Key to the Antarctic species of Iphimediidae

Remarks. This key leads directly to the species of the family without using genera as intermediate steps. The generic concept within this family is based solely on the mouthpart morphology and requires a preparation of each specimen. The use of these mouthpart details has been avoided as far as possible.

- 1a. Pereopod 7 posterior margin of basis excavate (very weakly in *Nodotergum*!), or multicuspidate 2
 1b. Pereopod 7 posterior margin of basis straight, rounded or sinuous, (occasionally with submarginal teeth) 11



- 2a. Paired teeth on 3 pereonites and pleonites combined 3
 2b. At least 4 pairs of teeth on pereonites and pleonites 5

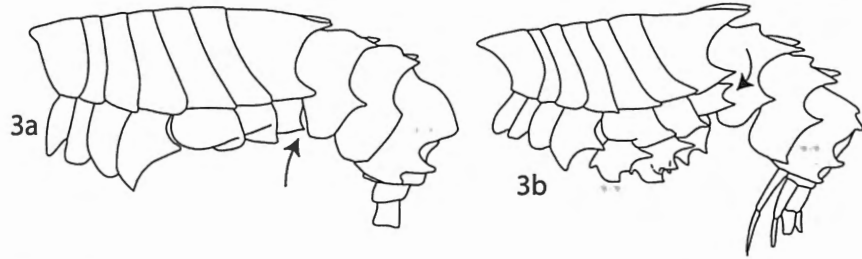


3a. Coxa 7 posterior margin with one posteroventral spine

Iphimedia magellanica

3b. Coxa 7 with posterior margin bicuspidate

4

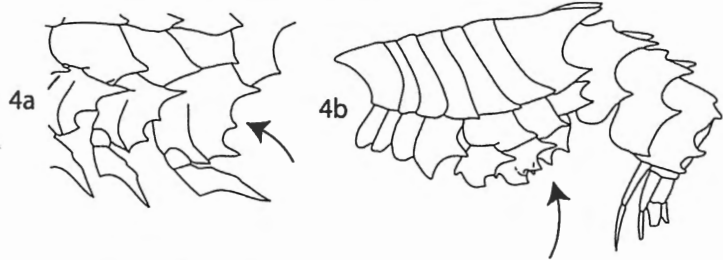


4a. Bases 6-7 with 4(-5) posteromarginal cusps

Iphimedia macrocystidis

4b. Bases 6-7 with 3 posteromarginal cusps

Iphimedia multidentata

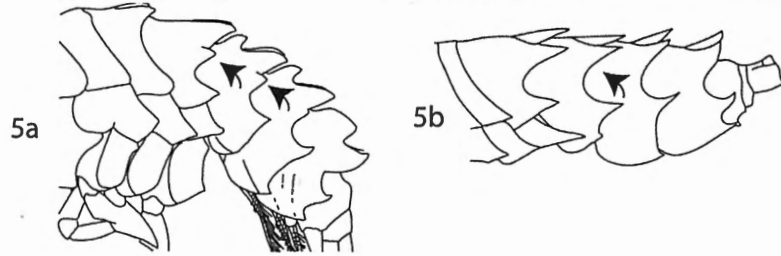


5a(2). With an additional tooth on pereonite 7 and pleonites 1-2 close to both sides of dorsal pair of processes (don't mix up with dorsolateral lobe)

6

5b. Paired teeth only, no additional dorsolateral processes close to dorsal pairs of processes

8

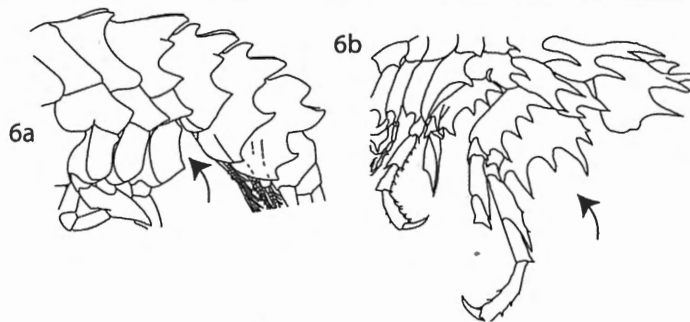


6a. Pereopod 7 posterior margin of basis regularly excavate

Pseudiphimediella nodosa

6b. Pereopod 7 posterior margin of basis multicuspidate

7



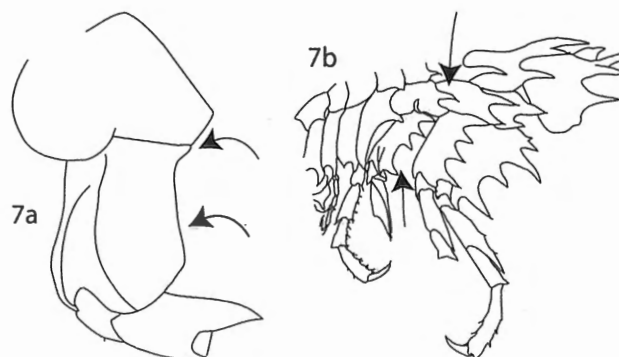
7a. Pereopod 5 posterior margin of basis weakly excavate, produced proximo-posteromarginal pointed tooth.

Coxa 6 posteriorly pointed

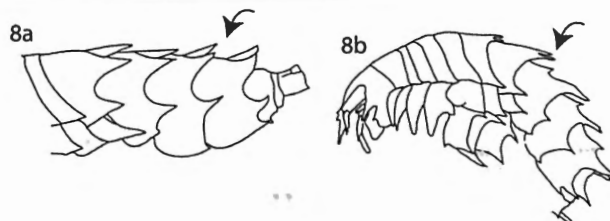
Pseudiphimediella glabra

7b. Pereopod 5 posterior margin of basis multicuspidate. Coxa 6 posteriorly bicuspidate

Labriphimedia pulchridentata

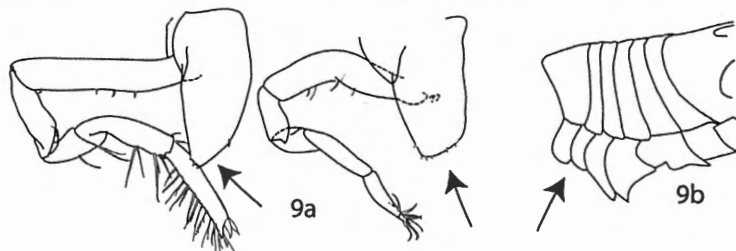


- 8a(5). Paired teeth on 4 pereonites and pleonites combined 9
 8b. Paired teeth on 5 pereonites and pleonites combined or more 10



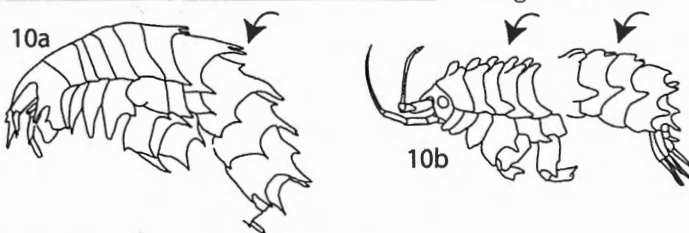
- 9a. Coxa 1 apex truncate and oblique anterodistally.
 Coxa 2 pointed distally subacute
 9b. Apex of coxae 1 and 2 rounded distally

Iphimediella paracuticoxa
Iphimediella acuticoxa

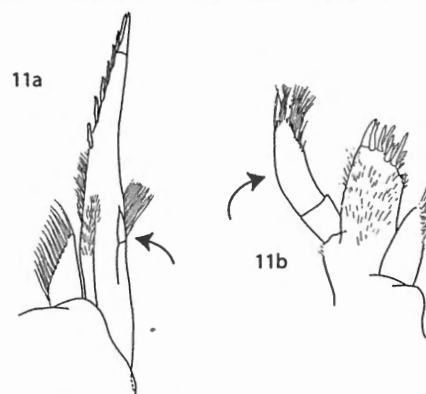


- 10(a8). Paired teeth on 5 pereonites and pleonites combined
 10b. Paired teeth on all pereonites and pleonites

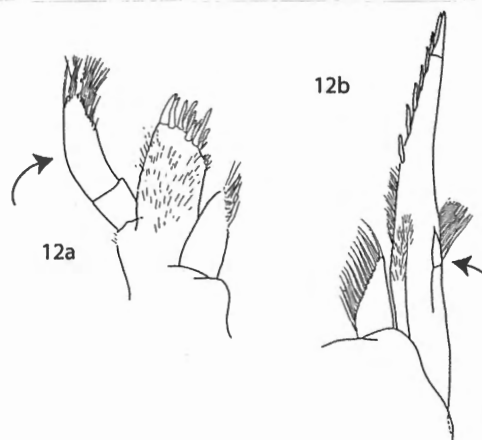
Gnathiphimedia urodentata
Nodotergum bicarinatum



- 11a(1). Maxilla 1 palp shorter than outer plate 12
 11b Maxilla 1 palp longer than outer plate, or subequal to outer plate 17



- 12a. Maxilla 1 palp 2-articulate 13
 12b. Maxilla 1 palp uniarticulate 15



13a. Pleon carinae drawn out into pointed teeth

Stegopanoploea joubini

13b. Pleon carinae low rounded, not acute

14

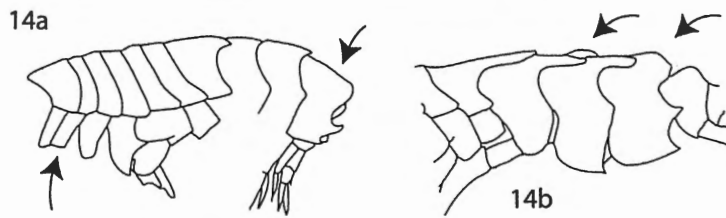


14a. Low rounded mid-dorsal carina on pleonite 3 only. Coxa 2 with truncate apex

Iphimedia imparilabia

14b. Low rounded mid-dorsal carina on pleonites 2-3.

Coxa 2 rounded anteriorly and pointed posterodistally

Anchiphimedia dorsalis

15a(12). Mid-dorsal body side smooth, without any teeth

Pariphimedia normani

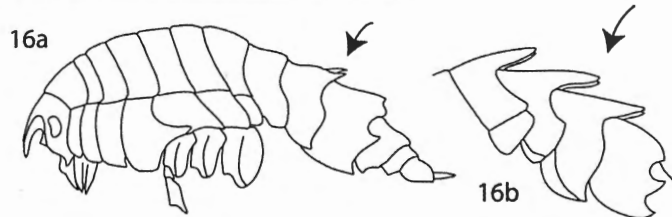
15b. Mid-dorsal body side with teeth

16

16a. Paired teeth on pleonite 2 only

Pariphimedia integricauda

16b. Three pairs of dorsal teeth

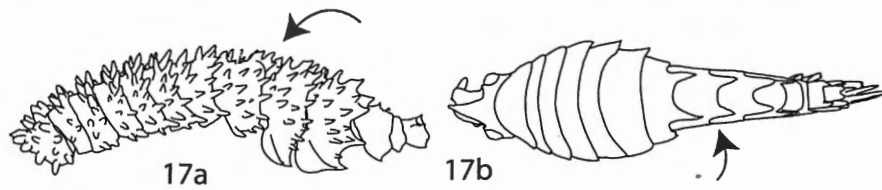
Paranchiphimedia monodi

17a(11). Dorsal armature irregular covered with spines or tubercles

18

17b. Dorsal armature with paired teeth

24

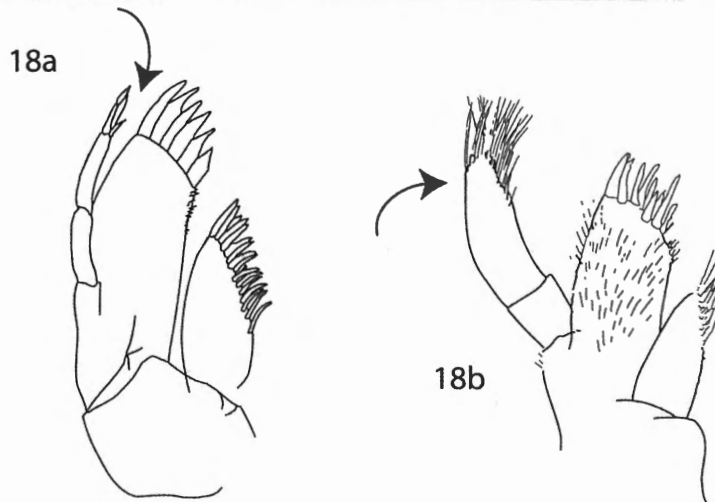


18a. Maxilla 1 palp subequal to outer plate

19

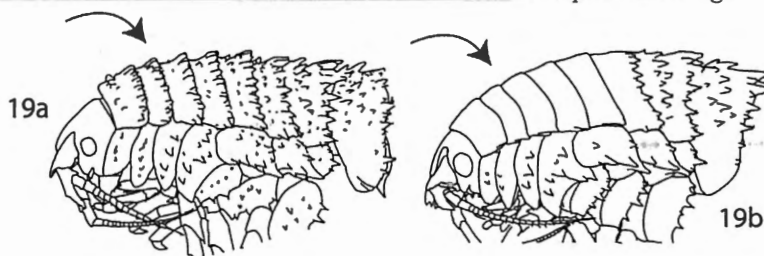
18b. Maxilla 1 palp longer than outer plate

20



- 19a. Anterior pereonites dorsally with teeth and tubercles
 19b. Anterior pereonites dorsally without teeth

Echiniphimedia gabrielae
Echiniphimedia waegelei



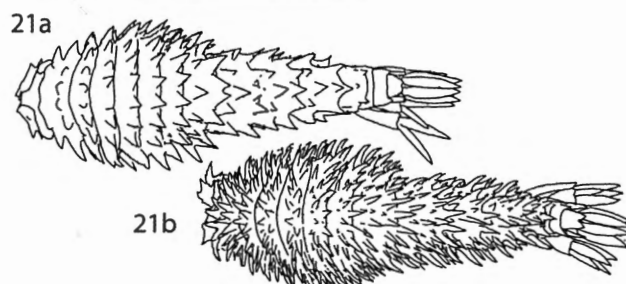
- 20a(18). Anterior pereonites dorsally with teeth
 20b. Anterior pereonites dorsally without teeth

21
 22



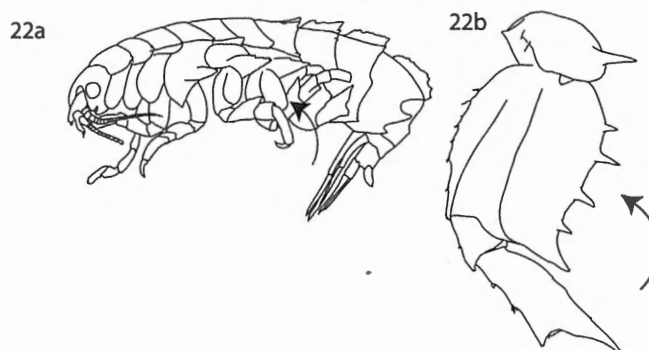
- 21a. Pereonites 2-7 with just 1 principal row of dorsal spines
 21b. Pereonites 2-7 with 2 or 2+ rows of dorsal long slender spines

Echiniphimedia scotti
Echiniphimedia hodgsoni



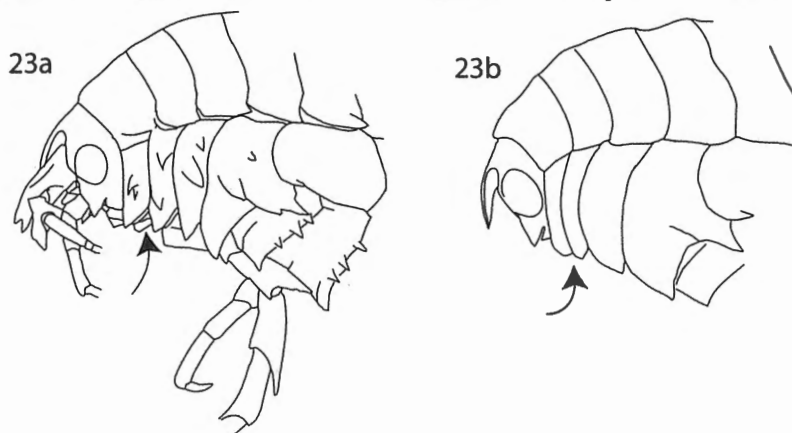
- 22a(20). Bases 5-7 without teeth
 22b. Bases 5-7 with submarginal teeth

Echiniphimedia imparidentata
 23



- 23a. Lateral teeth on coxae 1-3 present
 23b. Lateral teeth on coxae 1-3 absent

Echiniphimedia barnardi
Echiniphimedia echinata

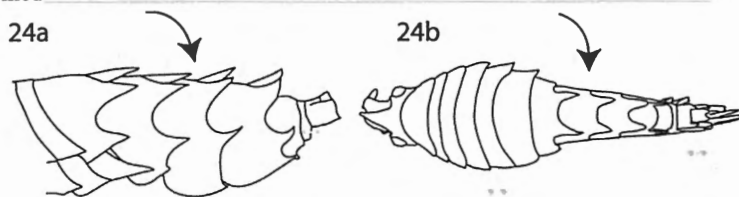


24a(17). Paired teeth on 4 pereonites and pleonites combined

25

24b. Paired teeth on 3 pereonites and pleonites combined

34

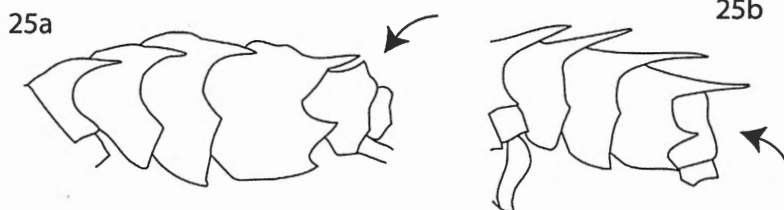


25a. Mid-dorsal carina on urosomite 1 present

26

25b. Mid-dorsal carina on urosomite 1 absent

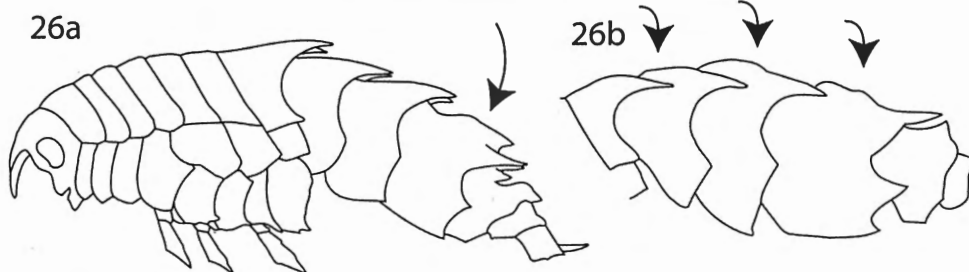
27



26a. Mid-dorsal carinae on pleonite 1-2 inconspicuous, but on pleonite 3 strongly projecting with a pointed tip posteriorly. Pereopod 5 posterior margin of basis excavate with pointed proximo-posteromarginal tooth and serrate posterior margin

Labriphimedia vespucii

26b. Low mid-dorsal carinae on pleonite 1-3. Pereopod 5 posterior margin of basis weakly sinuous

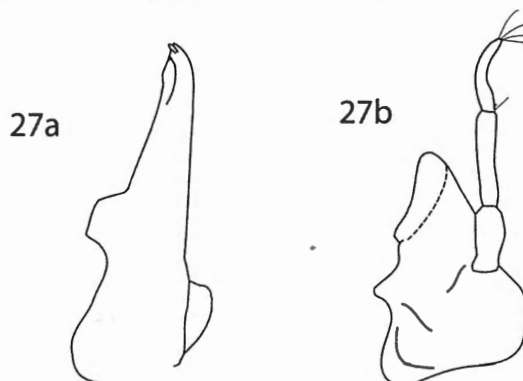
Iphimediella rigida

27a(25). Mandibular body elongate and strongly tapering distally

28

27b. Mandibular body bulky

30

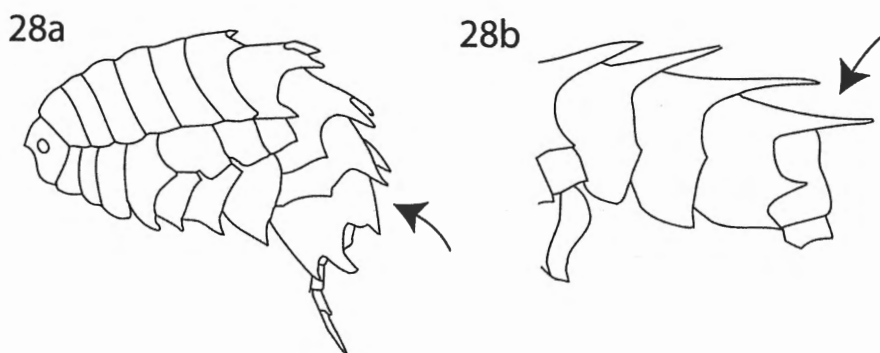


28a. Mid-dorsal carina on pleonite 3 only

28b. Mid-dorsal carinae on pleonites wanting

Iphimediella serrata

29



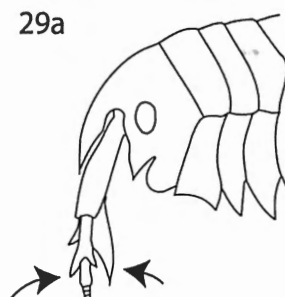
29a. Antenna 1 distal margin of first article with 2 processes; longest process of peduncular article 1 somewhat exceeding beyond distal margin of article 2; longest process of peduncular article 2 not exceeding beyond distal margin of article 3

Iphimediella cyclogena

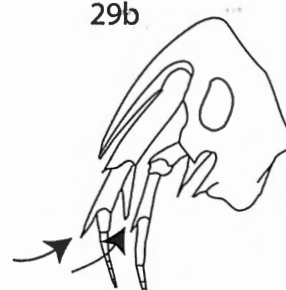
29b. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; longest process of peduncular article 2 exceeding beyond distal margin of article 3

Iphimediella microdentata

29a



29b



30a(27). Antenna 1 longest process of peduncular article 1 not exceeding beyond distal margin of article 2

Gnathiphimedia fuchsi

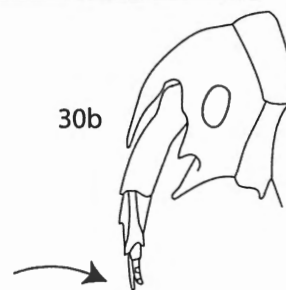
30b. Antenna 1 longest process of peduncular article 1 exceeding beyond distal margin of article 3

31

30a



30b



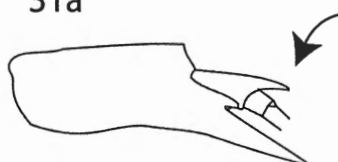
31a. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 2 exceeding beyond distal margin of article 3

Iphimediella margueritei

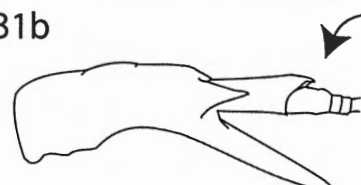
31b. Antenna 1 distal margin of first article with 2 processes, longest process of peduncular article 2 not exceeding beyond distal margin of article 3

32

31a



31b



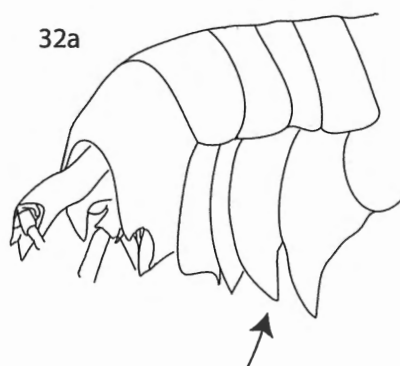
32a. Coxa 3 pointed distally. Coxa 5 posteriorly pointed

Gnathiphimedia mandibularis

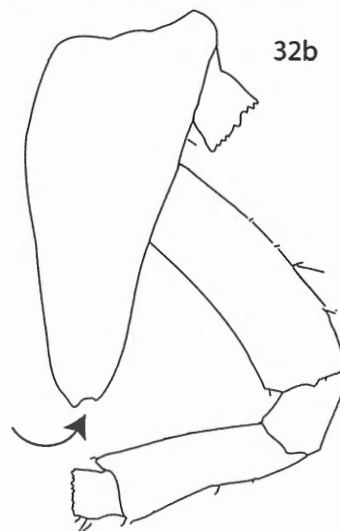
32b. Coxa 3 bifid to truncate distally. Coxa 5 posteriorly rounded

33

32a



32b



33a. Coxa 2 weakly excavate to truncate distally, paired teeth on pleonite 3 half the length of those on preceding segment

Gnathiphimedia watlingi

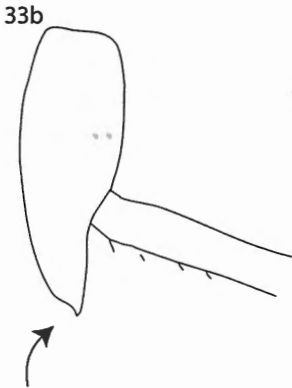
33b. Coxa 2 pointed distally, paired teeth on pleonite 3 subequal in length of preceding segment

Gnathiphimedia barnardi

33a



33b



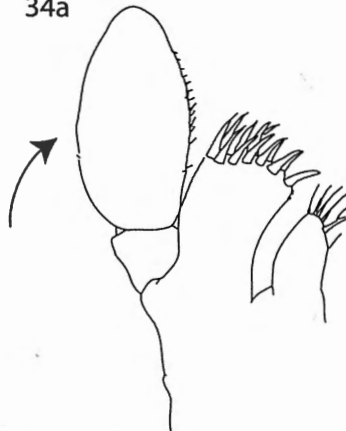
34a(24). Maxilla 1 second palp article palp strongly expanded to oval shape

Maxilliphimedia longipes

34b. Maxilla 1 second palp article palp normal

35

34a



34b



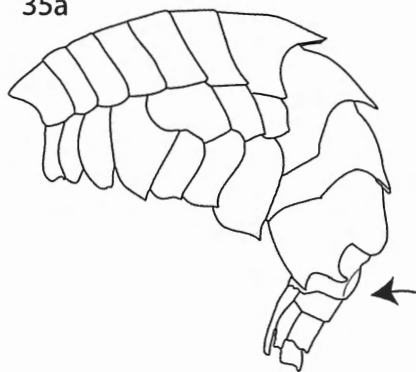
35a. Mid-dorsal carina on urosomite 1 as weak elevation present

Iphimediella bransfieldi

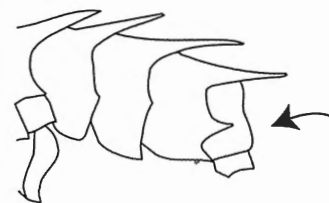
35b. Mid-dorsal carina on urosomite 1 absent

36

35a



35b



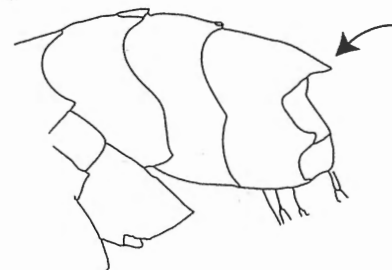
36a. Mid-dorsal carinae on some or all pleonites and/or pereonite 7

37

36b. Mid-dorsal carinae on pleonites wanting

40

36a

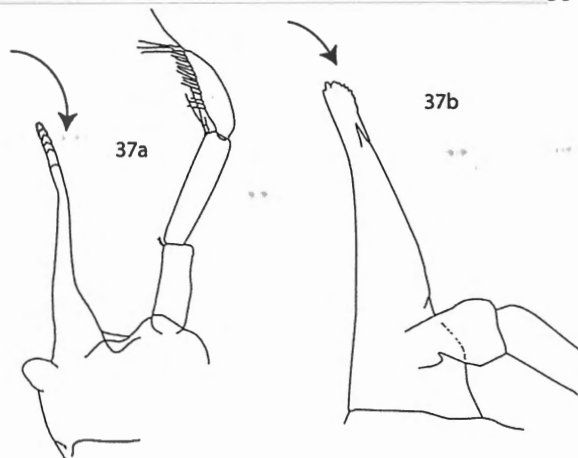


37a. Incisor with teeth along needle-like apex

Parapanoploea oxygnathia

37b. Incisor with teeth along medial side, or with apical teeth

38

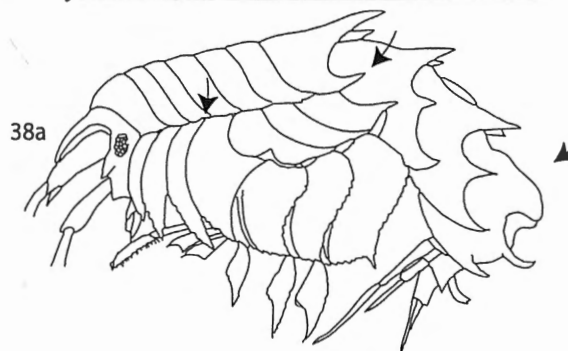


38a. Posteroventral corners of all pereonites strongly produced and pointed; mid-dorsal low rounded carinae on pleonites 1-3

Iphimedia pacifica

38b. Posteroventral corners of pereonites not produced on anterior pereonites, somewhat produced posteriorly, mid-dorsal carinae on pleonites 2-3, or 3 only

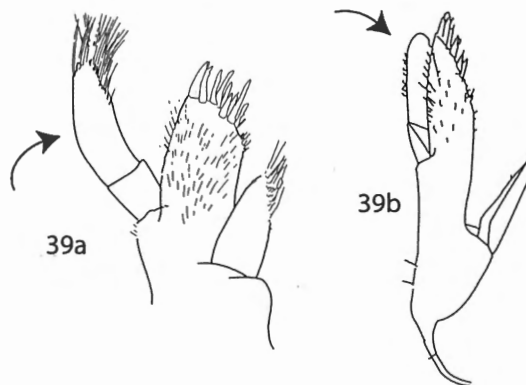
39



39a. Maxilla 1 palp longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3

Iphimediella georgei

39b. Maxilla 1 palp subequal to outer plate. Second article of maxilliped palp medially produced guarding along inside of article 3

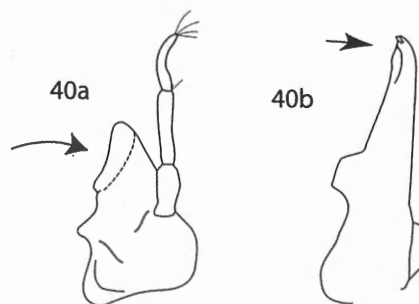
Iphimediella dominici

40a(36). Mandibular body bulky, incisor not toothed

41

40b. Mandibular body elongate and strongly tapering distally or needle-like, incisor toothed

43

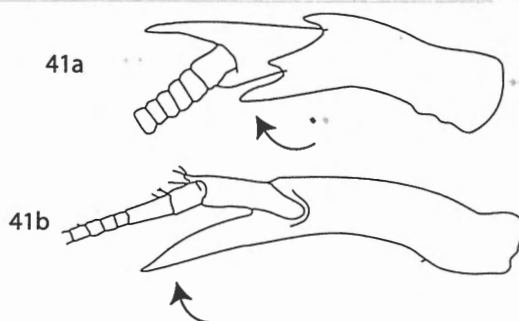


41a. Antenna 1 longest process of peduncular article 1 not exceeding beyond distal margin of article 3

Gnathiphimedia macrops

41b. Antenna 1 longest process of peduncular article 1 exceeding beyond distal margin of article 3

42

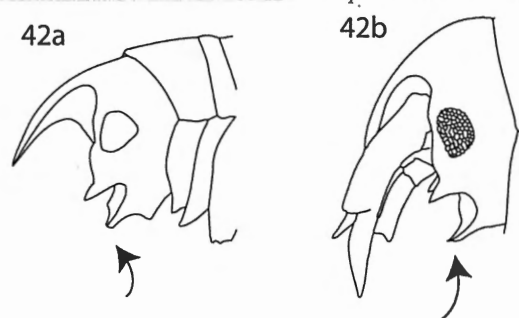


42a. Posterior process of head notch stout and slightly curved

Gnathiphimedia sexdentata

42b. Posterior process of head notch slender and rather straight

Gnathiphimedia incerta

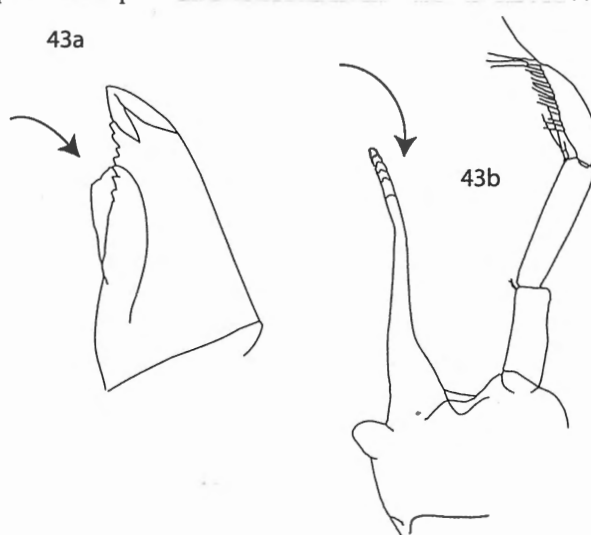


43a(40). Incisor with teeth along medial side. Maxilla 1 palp longer than outer plate

Iphimediella ruffoi

43b. Incisor with teeth along needle-like apex. Maxilla 1 palp subequal to outer plate

44



44a. Posterolateral process on epimeral plates 1-2 rounded and weakly produced. Antenna 1 longest process of peduncular

article 2 not exceeding beyond distal margin of article 3

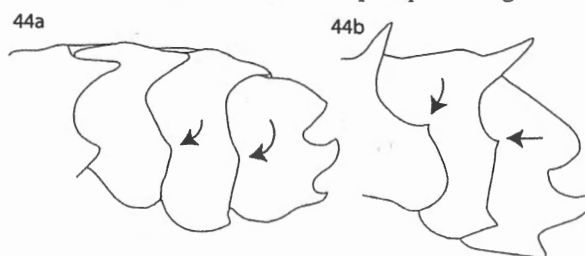
Parapanoploea recessa

44b. Posterolateral process on epimeral plates 1-2 produced and pointed.

Antenna 1 longest process of peduncular

article 2 exceeding beyond distal margin of article 3

Parapanoploea longirostris



***Anchiphimedia* K.H. Barnard, 1930**

Type-species. *Anchiphimedia dorsalis* K.H. Barnard, 1930

Diagnosis (modified after Barnard & Karaman, 1991). Dorsal side of body with paired teeth and rounded mid-dorsal carinae. Antenna 1 peduncular articles 1-2 long, subequal. Mouthparts projecting conically. Upper lip incised. Mandibular incisor oblique, smooth. Lower lip without inner lobes. Maxilla 1 palp 2-articulate, very small. Maxilla 2 without facial row of setae. Maxilliped with broad outer plate, apical margin somewhat funnel-shaped; palp 4-articulate, article 2 broad and unproduced mediolaterally. Coxae 1-4 progressively longer, truncate to weakly excavate apically. Gnathopod 2 longer than 1, both chelate.

***Anchiphimedia dorsalis* K.H. Barnard, 1930**

(Fig. 38a-b, Colour plate 3g, Map 18: rhomb)

References and synonymy. De Broyer *et al.* 2007: 94.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-2; low mid-dorsal carina on pleonites 2-3 (as rounded keels); low

mid-dorsal carina as rounded keel on urosomite 1 present. Posterolateral process on epimeral plate 1 rounded and weakly produced; on plate 2 produced and pointed; on plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded; on plates 2-3 pointed. Subantennal notch narrow, with both margins rounded apically. Antenna 1 distal margin of first article with 1 process; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; longest process of peduncular article 2 not exceeding beyond distal margin of article 3; first peduncular article equal in length to second. Upper lip incised. Mandibular body elongate and strongly tapering distally; incisor not toothed and oblique. Lower lip with small mediolateral notches. Maxilla 1 palp much shorter than outer plate, 2-articulate. Apical margin of maxilliped outer plate funnel-shaped, 2nd article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Coxa 1 subrectangular and excavate distally with both ventral corners subacute. Coxa 2 excavate distally and apically wide. Coxa 3 with obliquely truncate apex, only weakly concave. Coxa 4 pointed distally and excavate posterolaterally. Coxa 5 posteriorly rounded; posterior margin of basis straight, posteroventral corner subacutely pointed. Coxa 6 posteriorly rounded; posterior margin of basis straight, posteroventral corner pointed. Pereopod 7 coxa posteriorly pointed; posterior margin of basis

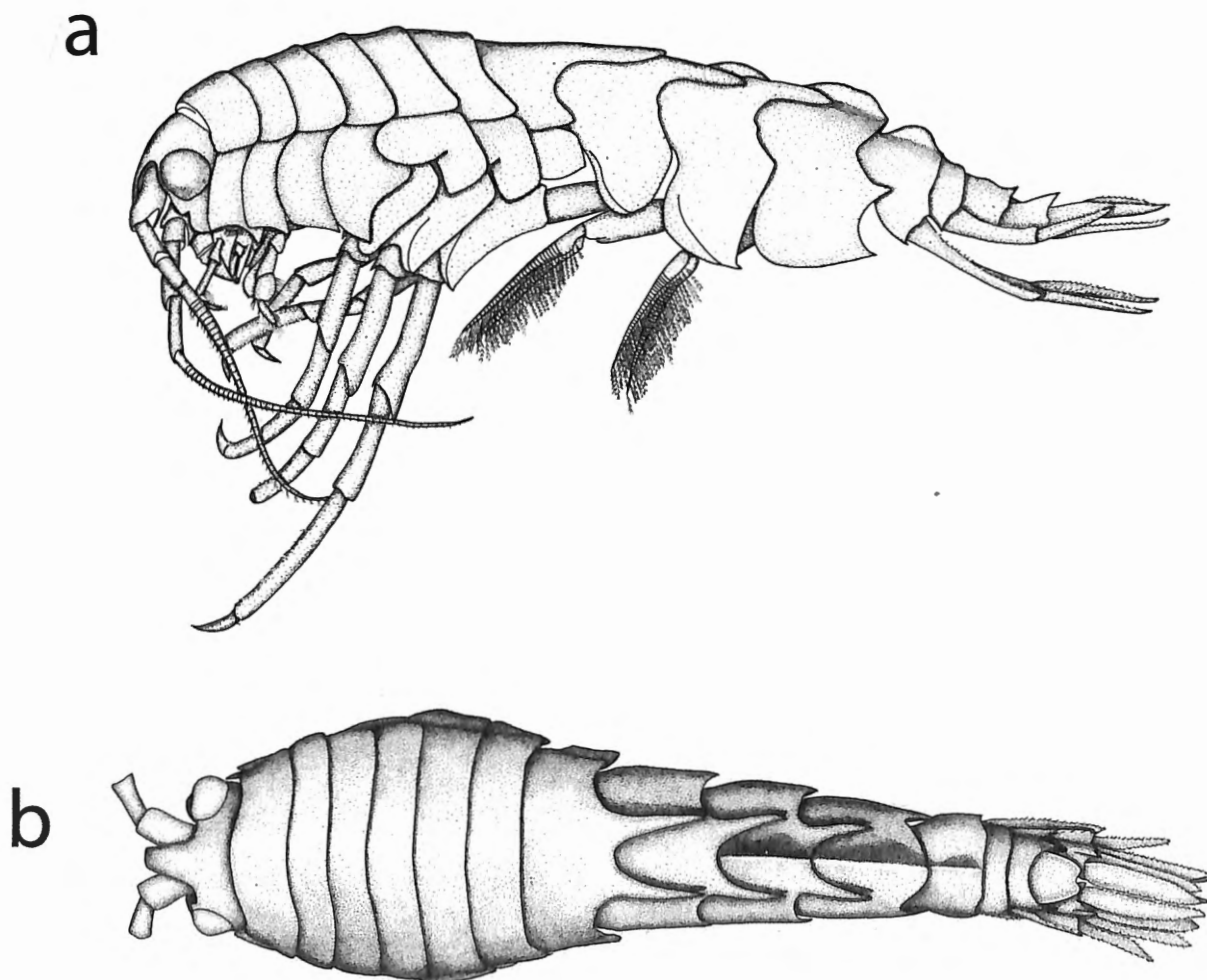
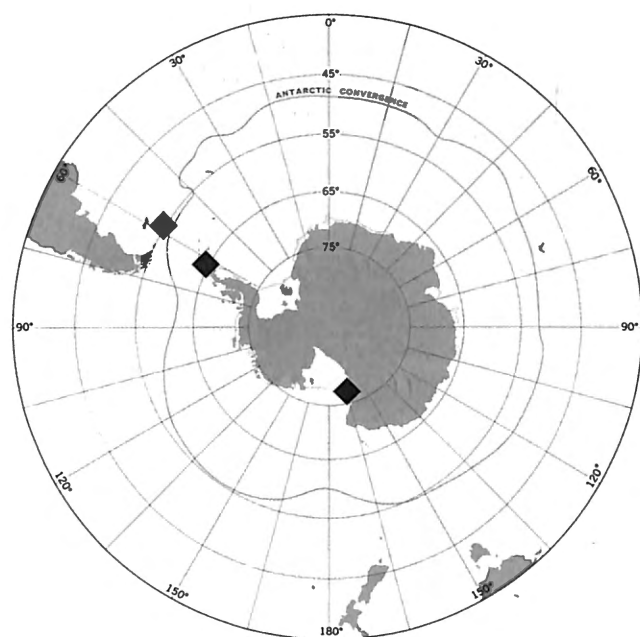


Fig. 38a-b. *Anchiphimedia dorsalis*. a) left lateral view; b) dorsal view.



Map 18. *Anchiphimedia dorsalis*: rhomb.

sinuous, posteroventral corner subacutely pointed. Telson with shallow U-shaped excavation and rounded apices.

Size. Male 38 mm.

Remarks. Three pairs of dorsal processes combined with shallow carinae on pleonites 1-2 and distally wide coxa is unique within the Iphimediidae. This species has also very unique mouthparts. The outer plates of the maxilliped are shaped into a funnel. The very many spine-like setae on the outer plate of maxilla 1 might be used to brush food together (see Coleman, 1991).

Type locality. Palmer Archipelago: Neumayer Channel.

Distribution. Palmer Archipelago; South Shetland Islands; Ross Sea; Weddell Sea.

Depth range. 200-732 m.

Echiniphimedia K.H. Barnard, 1930

Type-species. *Iphimedia hodgsoni* Walker, 1906c

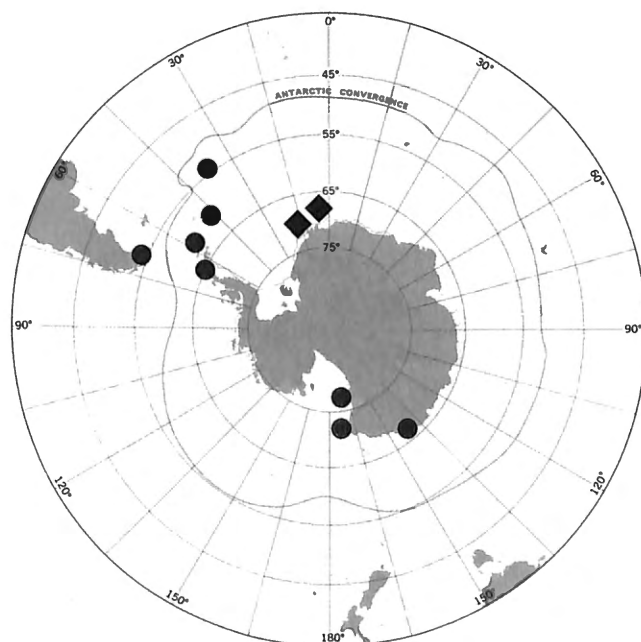
Diagnosis (modified after Barnard & Karaman, 1991). Body covered with teeth or processes. Peduncular articles of antennae expanded distally with apical processes. Antenna 1 peduncular articles 1-2 long, subequal (including processes) to second. Mouthparts projecting conically. Upper lip weakly incised or entire, not very broad. Mandibular incisor broad, stout, smooth or weakly toothed, molar absent or obsolescent. Lower lip without inner lobes, outer lobes broad without apical notches. Maxilla 1 palp 2-articulate, longer or subequal to outer plate. Maxilla 2 without facial row of setae. Maxilliped palp 4-articulate, article 2 not or only weakly produced mediodistally. Coxae 1-3 covered with teeth in some species, coxae 4-7 always with processes on lateral faces. Bases 5-7 at least marginally cuspidate. Telson incised.

Echiniphimedia barnardi Coleman & Andres, 1988

(Fig. 39a-b, Map 19: rhomb)

References and synonymy. De Broyer *et al.* 2007: 94.

Diagnosis. Dorsal side irregularly covered with acute teeth; but not on anterior pereonites. Posteroventral corners of pereonites strongly produced and pointed; mid-dorsal multidentate carinae on pleonites 1-3 and urosomite 1 present. Carinae on pereonite 7 and pleonites 1-2 highly elevated. Posterolateral process on epimeral plates 1-2 rounded and not produced, on plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 angular, that of plates 2-3 pointed. Subantennal notch narrow, with the anterior margin strongly produced and pointed, posterior margin angular. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; longest process of peduncular article 2 exceeding beyond distal margin of article 3; first peduncular article longer than second. Upper lip entire, only weakly depressed apically. Mandibular body elongate and strongly tapering distally, but distal region slightly expanded; incisor toothed; with oblique cutting edge. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than outer plate; 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Lateral face of all coxae and bases 5-7 with acute teeth submarginally only. Coxa 1 apex pointed distally. Coxa 2 pointed distally with posteromarginal notch. Coxae 3-4 pointed distally. Posterodistal margin of coxa 4 somewhat excavate. Coxae 5-6 posteriorly strongly pointed; posterior margin of bases sinuous and posteroventral corner pointed. Coxa 7 posteriorly rounded, but with submarginal tooth posteromarginally; posterior margin of basis sinuous and posteroventral corner pointed. Telson with wide v-shaped excavation.



Map 19. *Echiniphimedia barnardi*: rhomb; *Echiniphimedia echinata*: circle.

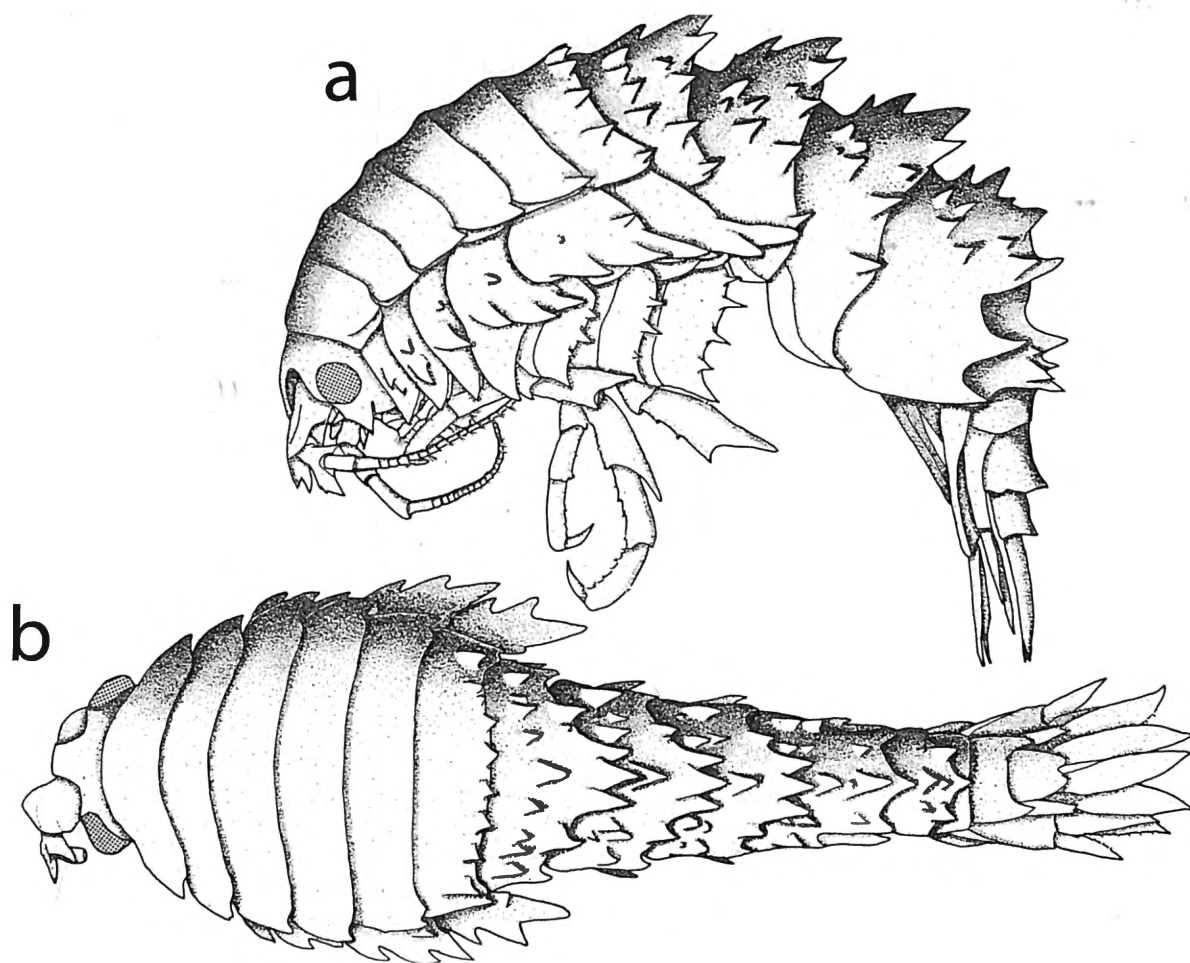


Fig. 39a-b. *Echiniphimedia barnardi*. a) left lateral view; b) dorsal view.

Size. Female 22-38 mm, male 24 mm.

Remarks. *Echiniphimedia barnardi* can be distinguished from the similar *E. waegeli* by the apically pointed coxa 1 (vs. rounded), palp of maxilla 1 subequal in length to outer plate (vs. longer) and the elevated carinae on pereonite 7 and pleonites 1-2.

Type locality. Weddell Sea; 73°12.84'S 20°27.31'W.

Distribution. Ross Sea; Weddell Sea.

Depth range. 165-710 m.

Echiniphimedia echinata (Walker, 1906c)

(Fig. 40a-b, Map 19: circle)

References and synonymy. De Broyer *et al.* 2007: 95.

Diagnosis. Dorsal side irregularly covered with spines or tubercles, except for anterior pereonites. Posteroventral corners of pereonites strongly produced and pointed. Mid-dorsal multidentate carinae on pleonites 1-3 and on urosomite 1 present. Posterolateral margin on epimeral plates 1-2 rounded and unproduced, on plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded, that of plates 2-3 pointed. Subantennal notch narrow, with

anterior margin produced and pointed. Antenna 1 first peduncular article longer than second, distal margin of first article with 3 processes, longest process of peduncular article 1 not exceeding beyond distal margin of article 2, longest process of peduncular article 2 exceeding beyond distal margin of first flagellar article. Upper lip entire. Mandibular body elongate and strongly tapering distally, but distal region slightly expanded; incisor toothed with oblique cutting edge. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Teeth on coxae 1-3 absent, on coxae 4-7 present; bases 5-7 with submarginal teeth only. Apex of coxa 1 oblique and pointed distally. Coxa 2 tapering distally with subacute apex. Coxa 3 distally broad with small apical tip. Coxa 4 pointed distally laterally produced, posterodistal margin excavate. Coxa 5 drawn out into long pointed tooth posteriorly, laterally produced. Coxa 6 posteriorly strongly pointed. Coxa 7 posteriorly rounded, but with sharp submarginal tooth. Posterior margin of bases 5-7 weakly sinuous with short submarginal spines, posteroventral corner pointed. Telson with wide and shallow rounded excavation.

Size. Ovigerous females 23-45 mm, males 13-17 mm.

Remarks. *Echiniphimedia echinata* is very similar to *Echiniphimedia imparidentata*, but in the latter species there

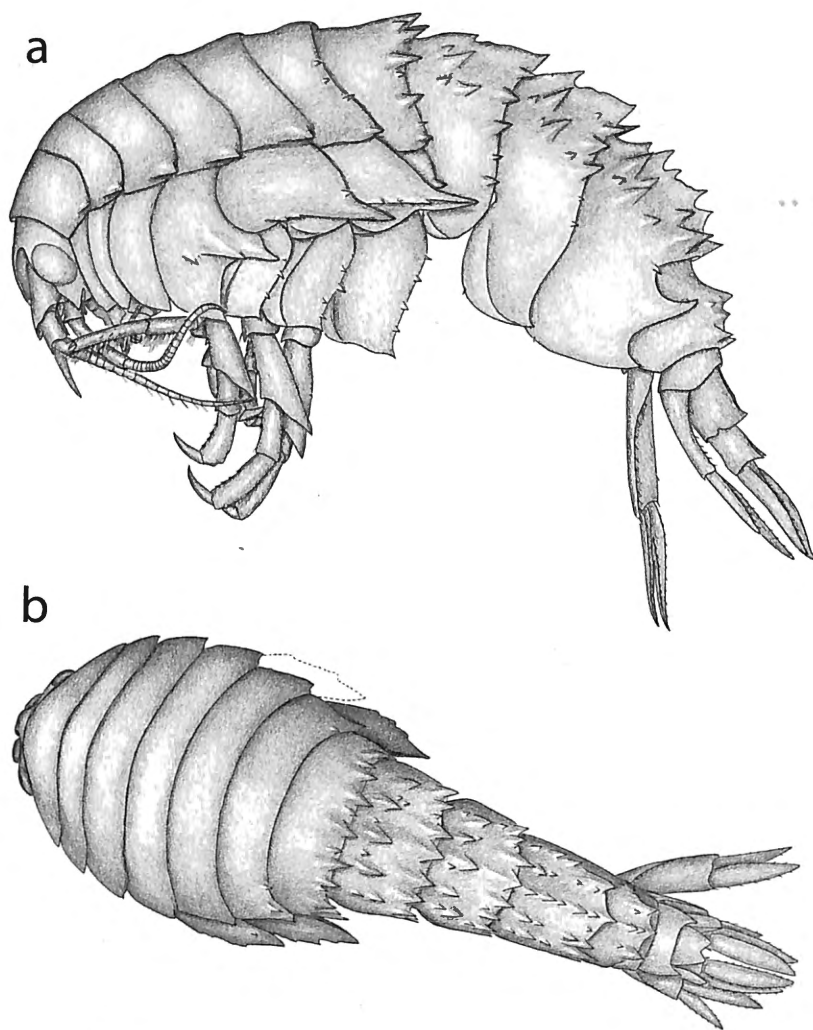


Fig. 40a-b. *Echiniphimedia echinata*. a) left lateral view; b) dorsal view.

are only very few dorsal teeth on both sides of the dorsal pleonite keel. Also the faces and posterior margins of the bases 5-7 lack any teeth. From *E. barnardi* and *E. waegelei* *E. echinata* differs in the untoothed faces of coxae 1-3.

Type locality. Ross Sea: Winter Quarters Bay.

Distribution. Adélie Coast; Bransfield Strait; Davis Sea; Marguerite Bay; Palmer Archipelago; Ross Sea; South Georgia; South Orkney Islands; South Shetland Islands; Weddell Sea.

Depth range. 0-728 m.

Echiniphimedia gabrielae Coleman & Andres, 1988

(Fig. 41a-b, Map 20: rhomb)

References and synonymy. De Broyer *et al.* 2007: 95.

Diagnosis. The complete dorsal body side irregularly covered with spines and tubercles. Posteroventral corners of pereonites strongly produced and pointed. Mid-dorsal multidentate carinae on pleonites 1-3 and urosomite 1 present. Posterolateral process on epimeral plate 1 rounded and not much produced, on plate 2 rounded sinuously, on epimeral

plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded, that of epimera 2-3 pointed and produced. Subantennal notch relatively narrow, with anterior and posterior margin rounded and not produced. Antenna 1 first peduncular article longer than second; distal margin of first article with 2 long and one short process, longest process not exceeding beyond distal margin of article 2, longest process of peduncular article 2 exceeding beyond distal margin of first flagellar article. Upper lip entire, with weak depression apically. Mandibular body elongate and strongly tapering distally, distal region slightly expanded; incisor with oblique cutting edge and irregular and short dentations. Lower lip with rounded unnotched lobes. Maxilla 1 palp subequal to outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Lateral face of all coxae covered with short acute teeth; bases 5-7 apart from submarginal teeth with additional teeth on lateral surface. Apex of coxae 1-2 rounded distally. Coxae 3-4 pointed distally. Posterodistal margin of coxa 4 excavate. Coxa of pereopods 5-6 posteriorly pointed not much produced laterally; posterior margin of bases 5-7 sinuous, posteroventral corner pointed. Coxa 7 posteriorly rounded, but with pointed submarginal tooth. Telson with

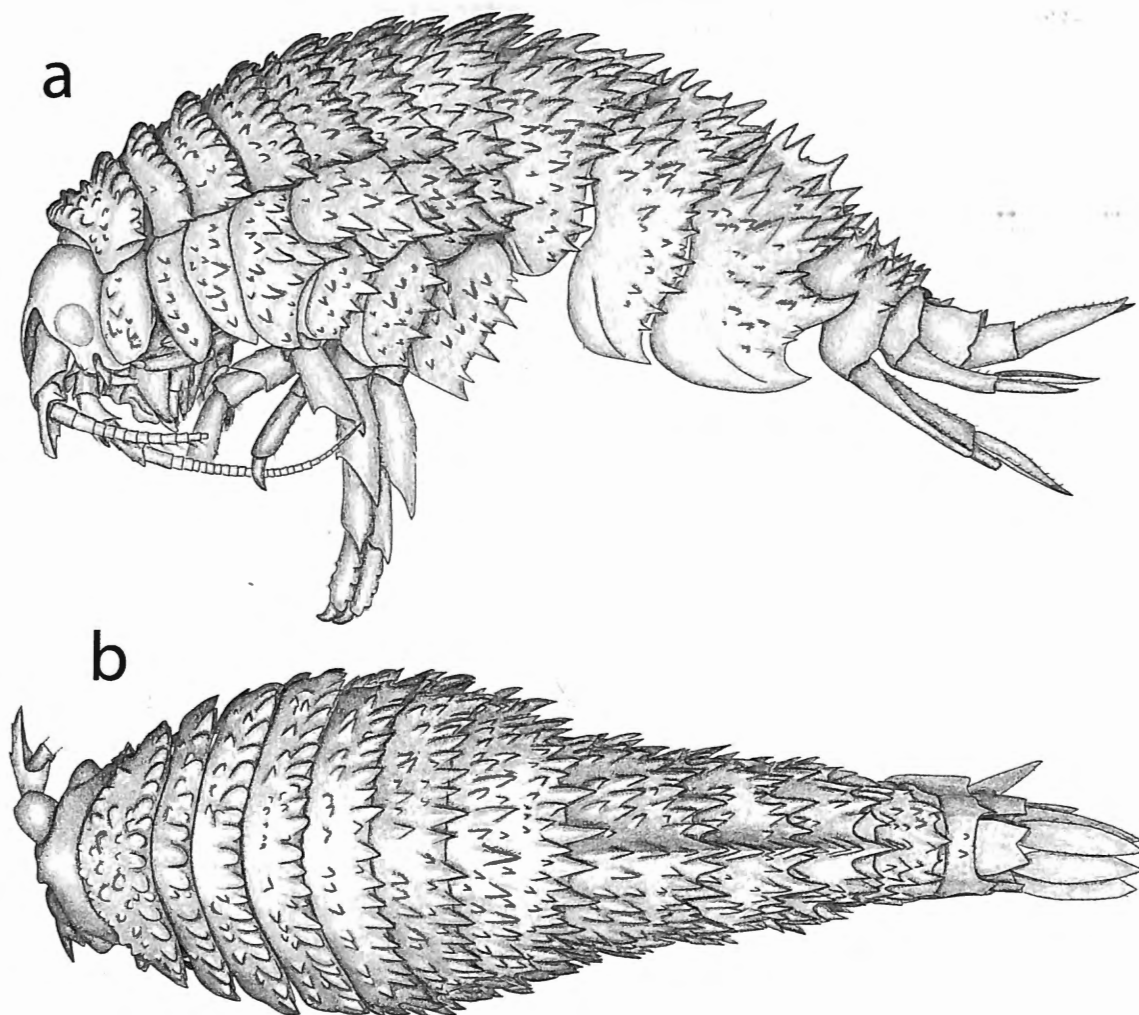
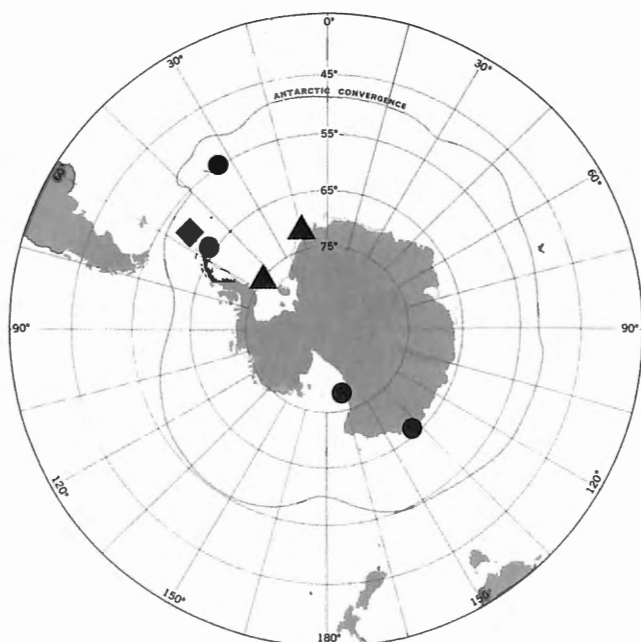


Fig. 41a-b. *Echiniphimedia gabrielae*. a) left lateral view; b) dorsal view.



Map 20. *Echiniphimedia gabrielae*: rhomb; *Echiniphimedia scotti*: circle; *Echiniphimedia waegeleri*: triangle..

shallow and wide v-shaped excavation.

Size. Male 18-20 mm.

Remarks. The species *E. gabrielae*, *E. scotti* and *E. hodgsoni* are closely related, all three species have processes also on the anterior pereonites. Table 3 compares the main diagnostic characters of these species.

Type locality. South Shetland Islands: 61°13.45'S 55°58.21'W.

Distribution. Only known from type locality and Polarstern ANT VI/2 St. 218 (61°00.1'S 55°09.2'W), St. 230 (61°02.3'S 54°44.6'W).

Depth range. 130-424 m.

Table 3. Comparison of *Echiniphimedia* species with processes on anterior pereonites.

	<i>E. gabrielae</i>	<i>E. scotti</i>	<i>E. hodgsoni</i>
dorsal processes	many small tubercles and posteriorly directed spines	fewer and stouter, only weakly posteriorly curved processes	2+ rows of pointed, long, only weakly posteriorly curved processes
antenna 1 distal margin of first article with	3 processes	5 processes	5 processes
antenna 1 longest process of peduncular article 1	not exceeding beyond distal margin of article 2	exceeding beyond distal margin of article 3	exceeding beyond distal margin of article 2
maxilla 1 palp	subequal to outer plate	longer than outer plate	longer than outer plate
apex of coxae 1-2	distally rounded	distally pointed	tapering with shallow distal excavation

Echiniphimedia hodgsoni (Walker, 1906c)

(Fig. 42a-b, Colour plates 3e-f, Map 21: rhomb)

References and synonymy. De Broyer *et al.* 2007: 95.
Diagnosis. Dorsal armature irregularly covered with spines with long pointed processes all over body surface. On first pleonite 3-4 rows of dorsal teeth, from pereonite 2 on only 2 rows. Posteroventral corners of pereonites produced and pointed. Multidentate mid-dorsal carinae on pleonites 1-3

and urosomite 1 present and additional acute processes on urosomites 2-3. Posterolateral process on epimeral plates 1-2 rounded and weakly produced, epimeral plate 3 strongly produced and pointed. Posteroventral corner of epimeral plate 1 angular, those of plates 2-3 pointed. Subantennal notch narrow, posterior margin drawn out into pointed tooth, anterior margin truncate. Antenna 1 distal margin of first article with 5 processes; longest process of peduncular article 1 exceeding beyond distal margin of article 2, longest process of peduncular article 2 exceeding beyond distal margin of first flagellar article. Upper lip entire with only

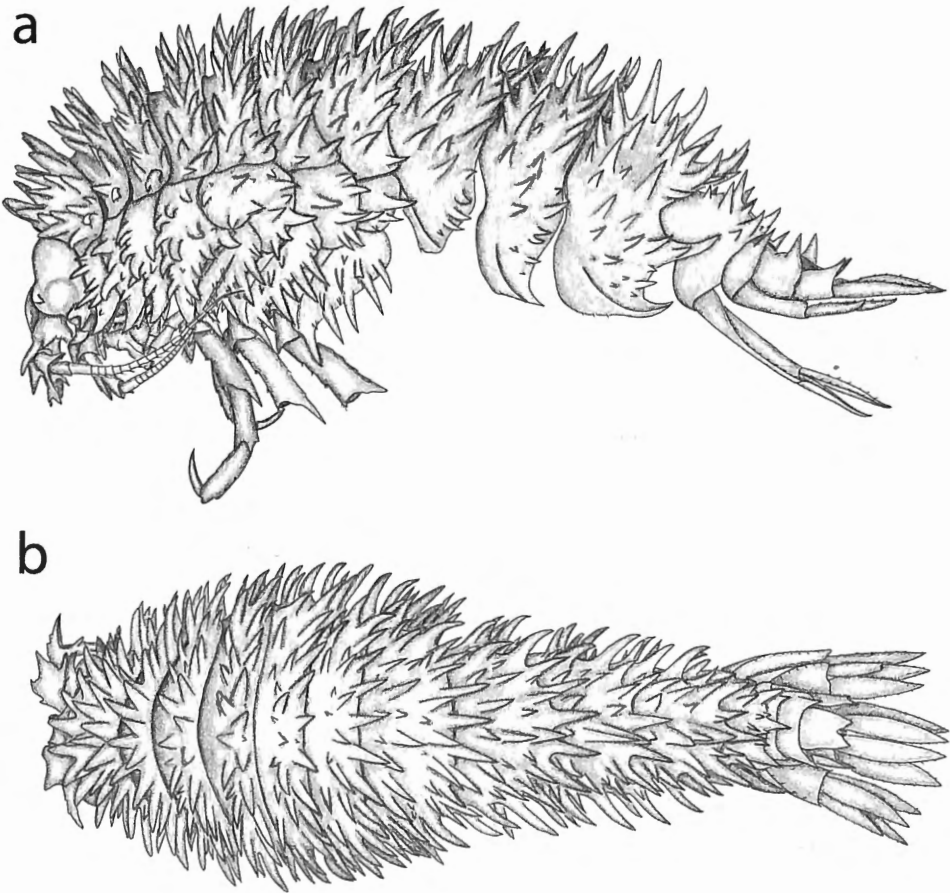
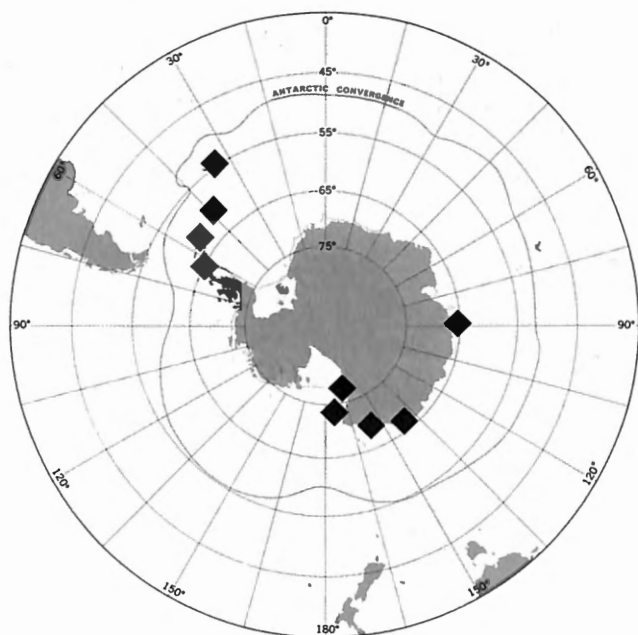


Fig. 42a-b. *Echiniphimedia hodgsoni*. a) left lateral view; b) dorsal view.



Map 21. *Echiniphimedia hodgsoni*: rhomb.

shallow depression. Mandibular body elongate and strongly tapering distally, but distal region slightly expanded; incisor with oblique cutting edge, toothed. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially slightly produced and guarding along inside of article 3. Lateral face of all coxae and basis with acute teeth; bases 5-7 apart from submarginal teeth additional teeth on lateral surface present. Apex of coxae 1-3 excavate distally (bifid). Coxa 4 pointed distally and posterodistal margin excavate. Pereopod 5-7 coxae posteriorly rounded, with submarginal teeth, posterior margin of bases sinuous, posteroventral corner pointed. Telson with shallow and wide v-shaped excavation. **Size.** Females up to 40 mm (ovigerous already from 15-18 mm), male 18-26 mm.

Remarks. The species *E. hodgsoni*, *E. gabriellae* and *E. scotti* and are closely related, all three species have processes also on the anterior pereonites. Table 3 compares the main diagnostic characters of these species.

Type locality. Ross Sea: Coulman Island.

Distribution. Adélie Coast; Bransfield Strait; Davis Sea; Oates Coast; Palmer Archipelago; Ross Sea; South Georgia; South Orkney Islands; South Shetland Islands; Weddell Sea.

Depth range. 20-1120 m.

***Echiniphimedia imparidentata* (Bellan-Santini, 1972a) n. comb.**

(Fig. 43, Map 22: rhomb)

? *Pariphimediella imparidentata* (Bellan-Santini, 1972a), p. 181, pl. 9

Iphimediella imparidentata Watling & Holman, 1980, p. 625

References and synonymy. De Broyer *et al.* 2007: 96.

Diagnosis. Dorsal armature restricted to posterior margin of pereonite 7 and pleonites 1-3, which bear, seen from lateral side, irregularly shaped carinae. Very few small teeth on both sides of the carinae. Urosomite 1 with small dorsal pointed process. Posteroventral corners of pereonites strongly produced and pointed. Posterolateral process of epimeral plate 2 rounded and weakly produced, slightly angular, that of plate 3 strongly produced and pointed. Posteroventral corner on epimeral plates 2-3 pointed. Subantennal notch narrow, both margins drawn out into small pointed processes. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; longest process of peduncular article 2 exceeding far beyond distal margin of first flagellar article. Upper lip entire and rounded apically. Mandibular body elongate and strongly tapering distally; incisor oblique, with uneven cutting blade. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Lateral face of coxae 3-7 with acute teeth. Bases 5-7 without teeth. Coxa 1 apex rounded distally, with small pointed tip; basis straight anteromarginally and convex posteromarginally; carpus = 0.73 x propodus length. Coxa 2

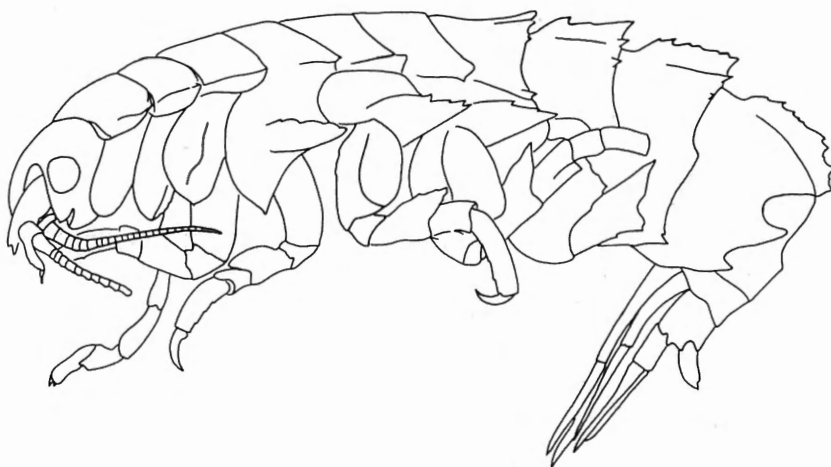
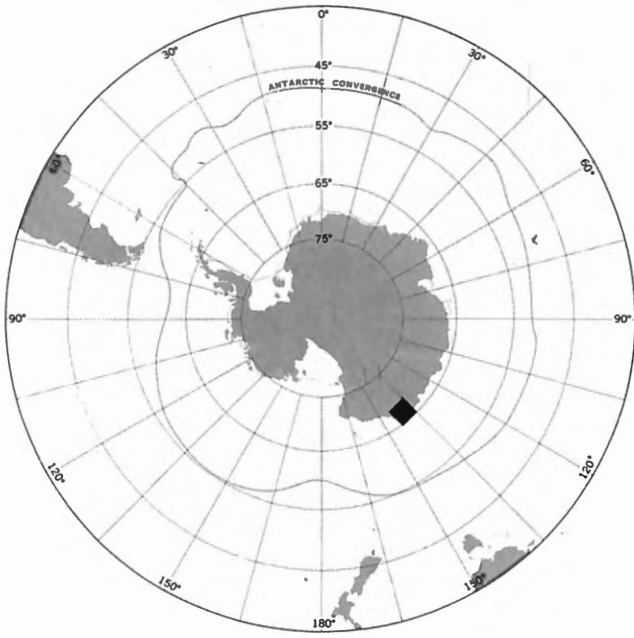


Fig. 43. *Echiniphimedia imparidentata*, redrawn after Bellan-Santini, 1972a. Left lateral view.



Map 22. *Echiniphimedia imparidentata*: rhomb.

rounded distally. Coxa 3 pointed distally, but rather angular. Coxa 4 pointed distally, with several teeth on posterior process, posterodistal margin excavate. Pereopod 5-6 coxae posteriorly pointed and strongly produced, with several teeth on process; posterior margin of basis rounded; posteroventral corner of basis rounded. Pereopod 7 coxa posteriorly pointed;

posterior margin of basis straight, posteroventral corner pointed. Telson with shallow and wide v-shaped excavation.

Size. Female 20-21 mm.

Remarks. This species is transferred to the genus *Echiniphimedia*, because it is morphologically very similar to *E. echinata*. It differs from this species only in the sparsity of the dorsal teeth on both sides of the dorsal keel and the lacking teeth on bases 5-7. Different from *E. echinata* the bases 5-6 have the posteroventral angle rounded.

Type locality. Adélie Coast, Géologie Archipelago between Bernard and Lamarck Islands: 66°139'S 139°55'E.

Distribution. Only known from type locality.

Depth range. 50 m.

Echiniphimedia scotti K.H. Barnard, 1930

(Fig. 44a-b, Map 20: circle)

References and synonymy. De Broyer *et al.* 2007: 96.

Diagnosis. Dorsal armature irregularly covered with rows of stout spines and with blunt tubercles on anterior pereonites. Posteroventral corners of pereonites strongly produced and pointed; multidentate mid-dorsal carinae on pleonites 1-3 and urosomite 1. Posterolateral process on epimeral plates 1-2 rounded and weakly produced, that of plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded, that of 2-3 pointed. Subantennal notch narrow, anterior margin drawn out into tip. Antenna 1 distal

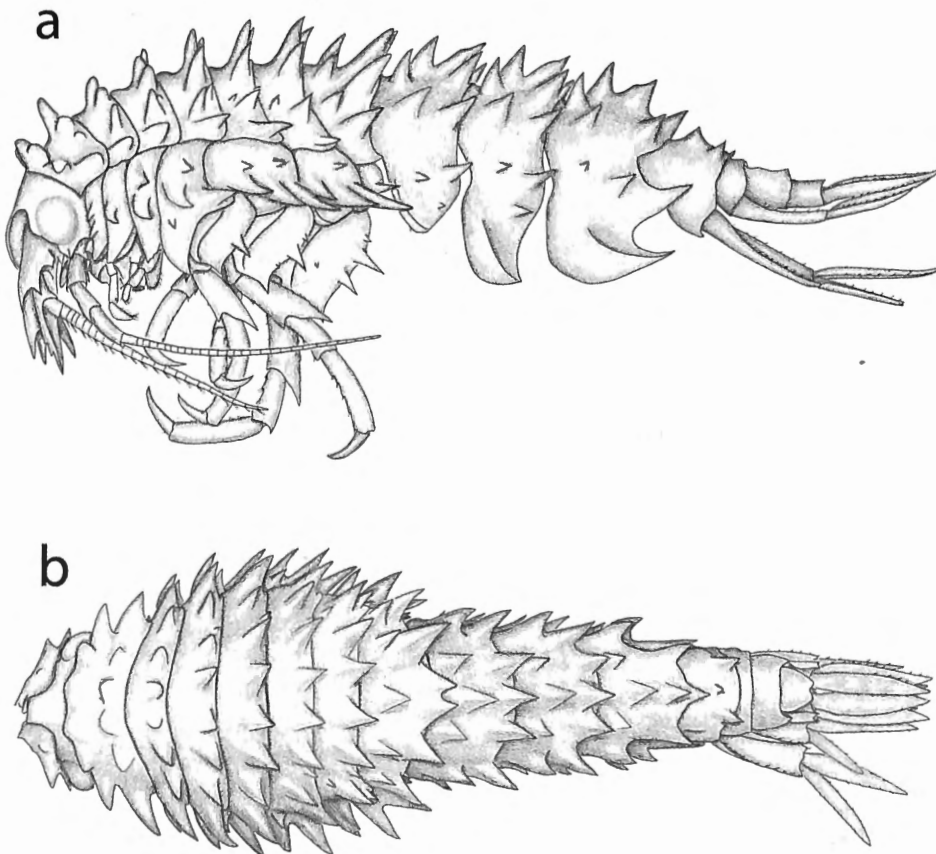


Fig. 44a-b. *Echiniphimedia scotti*. a) left lateral view; b) dorsal view.

margin of first article with 5 processes (some additional smaller processes may be present), longest process of peduncular article 1 exceeding beyond distal margin of article 3, longest process of peduncular article 2 exceeding beyond distal margin of first flagellar article. Upper lip entire. Mandibular body elongate and strongly tapering distally, but distal region slightly expanded; incisor with small teeth on oblique cutting edge. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped medially not produced forward and not guarding along inside of article 3. Lateral face of all coxae and bases 5-7 with acute teeth; bases 5-7 apart from submarginal teeth few additional teeth on lateral surface present. Apex of coxae 1-2 pointed distally. Coxa 4 pointed distally and posterodistal margin excavate. Pereopod 5-6 coxae posteriorly pointed; posterior margin of bases sinuous and posteroventral corner pointed. Pereopod 7 coxa posteriorly rounded with submarginal teeth posteriorly; posterior margin of basis straight to sinuous and posteroventral corner of basis pointed. Telson with shallow and wide v-shaped excavation.

Size. Female 12-19 mm, male 22 mm.

Remarks. The species *E. scotti*, *E. hodgsoni* and *E. gabrielae* and are closely related, all three species have processes also on the anterior pereonites. Table 3 compares the main diagnostic characters of these species.

Type locality. Ross Sea: McMurdo Sound.

Distribution. Adélie Coast; Ross Sea; South Georgia; Trinity Peninsula.

Depth range. 0-457 m.

Echiniphimedia waegelei Coleman & Andres, 1988

(Fig. 45a-b, Map 20: triangle)

References and synonymy. De Broyer *et al.* 2007: 97.

Diagnosis. Dorsal armature irregularly covered with spines or tubercles, except for anterior pereonites. Posteroventral corners of pereonites strongly produced and pointed; multidentate mid-dorsal carinae on pleonites 1-3 and on urosomite 1; one row of pointed teeth on posterior margin of pleonite 6, 2 irregular rows of pointed processes on pereonite 7. Posterolateral process on epimeral plates 1-2 rounded, on plate 3 strongly produced, pointed and curved upwards. Posteroventral corner on epimeral plate 1 rounded, that on plates 2-3 pointed. Subantennal notch narrow with the anterior margin subacute and produced, posterior margin rounded. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; longest process

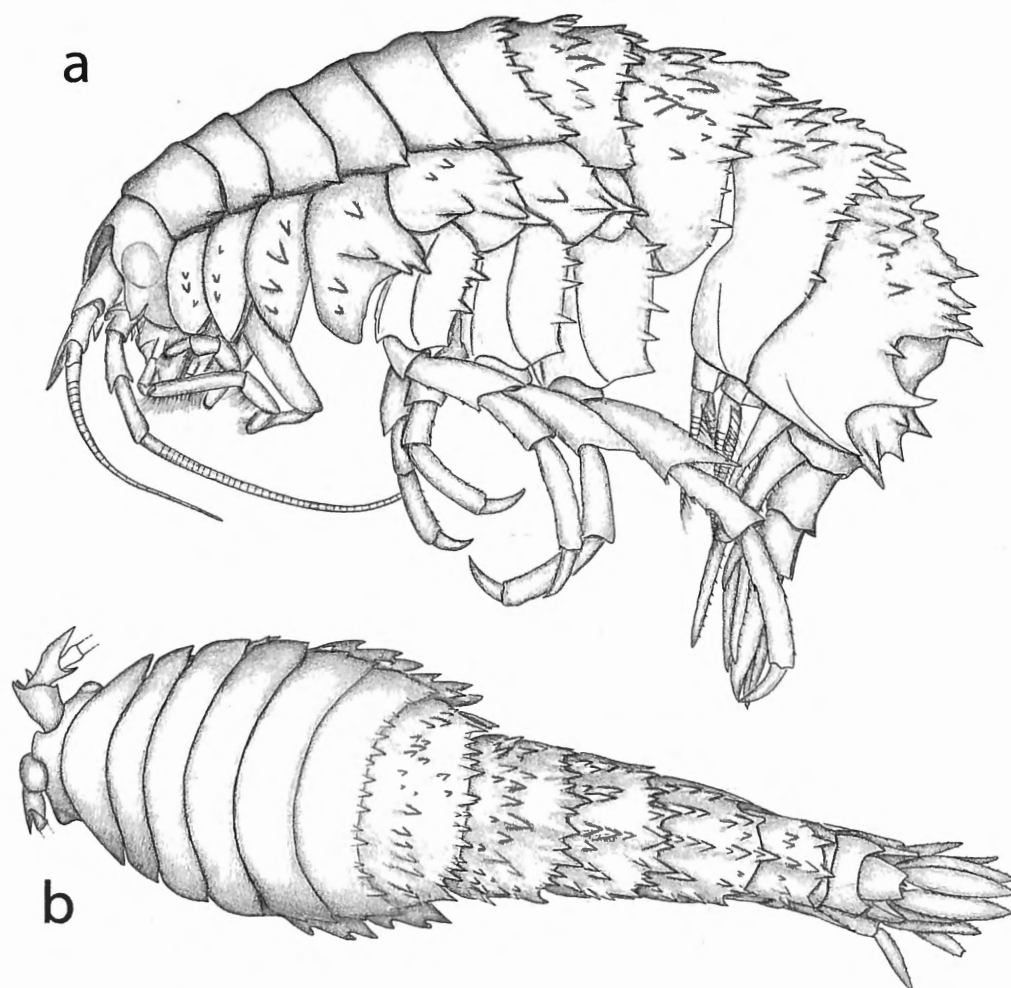


Fig. 45a-b. *Echiniphimedia waegelei*. a) left lateral view; b) dorsal view.

of peduncular article 2 exceeding beyond distal margin of article 3. Upper lip entire. Mandibular body elongate and strongly tapering distally; incisor with small teeth on oblique cutting edge. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Lateral face of all coxae with acute teeth; bases 5-7 with submarginal teeth only. Apex of coxa 1 rounded distally, that of gnathopod 2 subacute. Coxae 3-4 pointed distally. Posterodistal margin of coxa 4 excavate. Coxae 5-6 posteriorly pointed, that of pereopod 7 rounded, posterior margin of the bases 5-7 weakly sinuous with the posteroventral corner pointed. Telson with wide and shallow rounded excavation.

Size. Female 26-37 mm, male 23-25 mm.

Remarks. *Echiniphimedia waegelei* is somewhat similar to *E. echinata*, *E. barnardi* and *E. imparidentata*. All these species have the anterior pereonites smooth. *Echiniphimedia waegelei* has processes on the lateral faces of coxae 1-3, as *E. barnardi*, whereas *E. echinata* and *E. imparidentata* have smooth coxae 1-3. From *E. barnardi* *E. waegelei* differs in the following: rounded apex of coxa 1 (vs. pointed); mid-dorsal carina not strongly elevated (vs. elevated) and maxilla 1 palp not exceeding outer plate (vs. longer).

Type locality. Weddell Sea, eastern shelf: Polarstern ANT III, St. 20: 71°21.61'S 13°24.50'W.

Distribution. Ross Sea; Weddell Sea.

Depth range. 170-254 m.

Gnathiphimedia K.H. Barnard, 1930

Type-species. *Gnathiphimedia mandibularis* K.H. Barnard, 1930, selected by J.L. Barnard, 1969c.

Diagnosis (modified after Barnard & Karaman, 1991). Dorsal body side covered posteriorly with paired processes. Antenna 1 peduncular article 1 longer 2. Mouthparts projecting conically but not strongly. Upper lip entire, epistome very broad. Mandibular incisor broad and blunt, not for cutting but crushing food. Lower lip without or with weak inner lobes. Maxilla 1 with 2-articulate palp, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped palp article 2 narrow and apicomediaally unproduced, palp article 4 inconspicuous. Coxae tapering distally, coxa 4 long. Gnathopods alike, but of different length and setation, articles 5-6 elongate, narrow, both gnathopods chelate. Telson incised.

Gnathiphimedia barnardi Thurston, 1974b

(Fig. 46, Map 23: rhomb)

References and synonymy. De Broyer *et al.* 2007: 97.

Diagnosis. Dorsal armature with paired teeth on pereonite 7 and pleonites 1-3. Posteroventral corners of pereonites not produced on segments 1-4, somewhat produced on posterior pereonites; mid-dorsal carinae on pleonites and urosomite 1 wanting. Posterolateral process on epimeral plates 1-2 rounded and weakly, that of plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded,

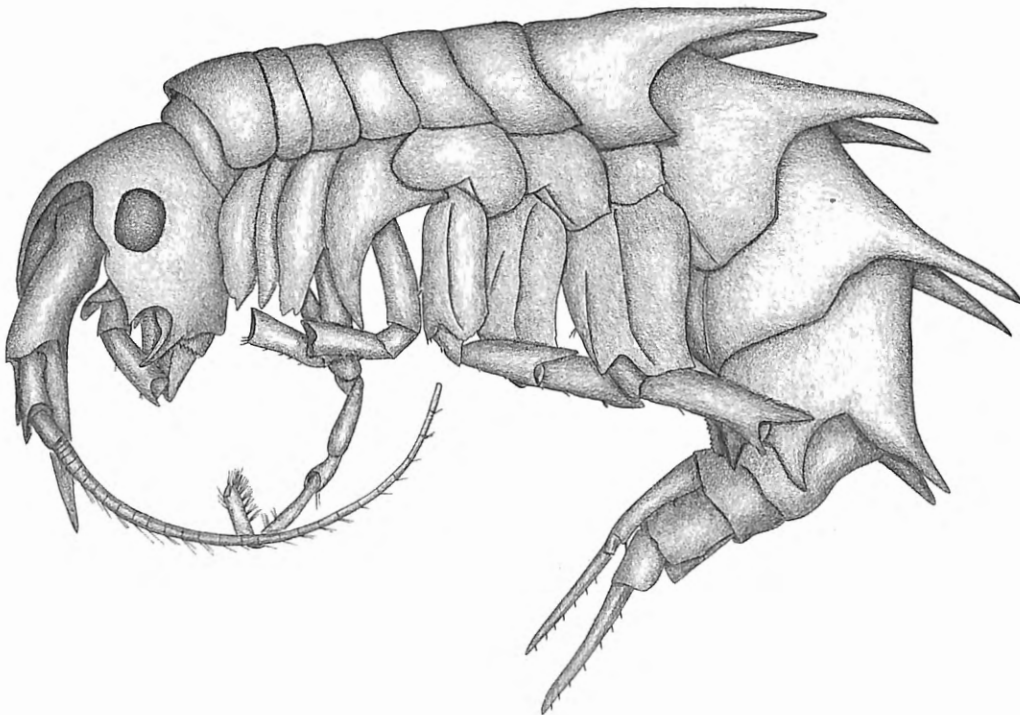


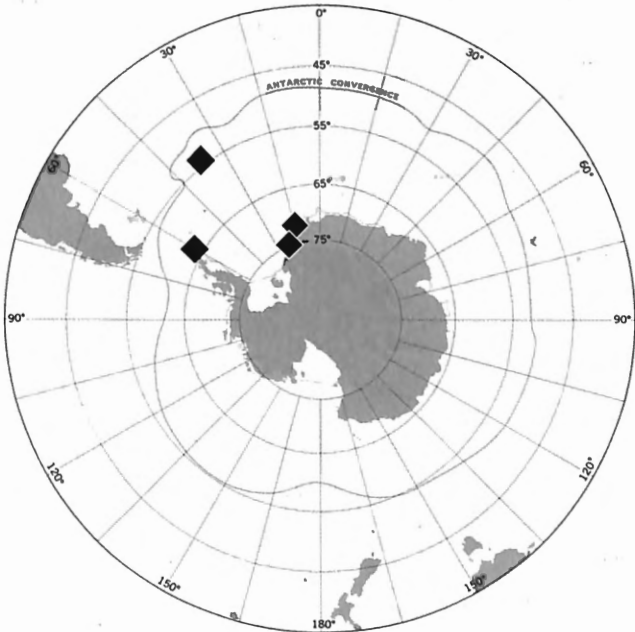
Fig. 46. *Gnathiphimedia barnardi*. Left lateral view.

that of pleonites 2-3 pointed. Subantennal notch as wide rounded excavation, posterior margin drawn out into pointed tooth, anterior margin shorter and also pointed. Antenna 1 first peduncular article longer than 2-3 combined, distal margin of first article with 2 processes; longest process of peduncular article 1 exceeding beyond distal margin of article 3; longest process of peduncular article 2 not exceeding beyond distal margin of article 3; first flagellar articles fused. Upper lip entire. Mandibular body bulky; incisor not toothed, rounded, not cutting. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Apex of coxae 1-2 pointed distally. Coxa 3 narrow and excavate distally (bifid). Coxa 4 narrow and strongly pointed distally; posterodistal margin of coxa 4 deeply excavate. Coxae 5-7 posteriorly rounded; posterior margin of bases 5-7 weakly sinuous and their posteroventral corner pointed. Telson with wide v-shaped excavation, with subacute apices.

Size. Female 13 mm.

Remarks. *Gnathiphimedia barnardi* is most similar to *G. mandibularis*, *G. fuchsi* and *G. watlingi*. These species share the typical *Gnathiphimedia*-like bulky mandibles and 4 pairs of dorsal processes. For differences see Table 4.

Type locality. South Georgia: Discovery, St. 159: 53°48'S 35°57'W.



Map 23. *Gnathiphimedia barnardi*: rhomb.

Distribution. South Georgia; South Shetland Islands; Weddell Sea.

Depth range. 26-250 m.

Table 4. Differences between *Gnathiphimedia barnardi*, *G. mandibularis*, *G. fuchsi* and *G. watlingi*.

	<i>G. barnardi</i>	<i>G. fuchsi</i>	<i>G. mandibularis</i>	<i>G. watlingi</i>
Paired dorsal process on pleonite 3	about as long as on preceding segment	about as long an on preceding segment	about as long an on preceding segment	shortened
Antenna 1 longest process of peduncular article 1 exceeding beyond distal margin of article 3	yes	no	yes	yes
Antenna 1, first flagellar article	segmented	segmented	not segmented	not segmented
Posterolateral process on epimeral plates 1-2	rounded	rounded	pointed	pointed
Posterolateral process on epimeral plate 3	situated close to posteroventral corner	normal	normal	normal
Apex of coxa 1	pointed distally; or truncate	pointed distally	excavate with rounded anteroventral and pointed posteroventral corner	excavate distally
Apex of coxa 2	pointed distally	pointed distally	pointed distally	excavate distally
Apex of coxa 3	excavate distally	pointed distally	pointed distally	excavate distally
Coxae 5-7 posteriorly	rounded	rounded	pointed	rounded

***Gnathiphimedia fuchsi* Thurston, 1974a**

(Fig. 47; Colour plate 4a, Map 24: rhomb)

References and synonymy. De Broyer *et al.* 2007: 97.

Diagnosis. Dorsal armature with paired teeth on pereonite 7 and pleonites 1-3. Posteroventral corners not produced on anterior pereonites, somewhat produced on posterior ones. Mid-dorsal carinae on pleonites and urosomites wanting. Posterolateral process on epimeral plates 1-2 rounded and weakly produced, that on plate 3 strongly produced and pointed. Posteroventral corner on epimeral plates 1-2 angular, that of plate 3 pointed. Subantennal notch wide, with both margins drawn out into tips, posterior tip longer. Antenna 1 distal margin of first article with 2 processes (or 3?), longest process of peduncular article 1 not (much?) exceeding beyond distal margin of article 2; longest process of peduncular article 2 not exceeding beyond distal margin of article 3; uniaarticulate accessory flagellum absent (?). Upper lip entire. Mandibular body bulky, incisor not toothed, rounded, not cutting. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Apex of coxae 1-4 pointed distally. Posterodistal margin of coxa 4 excavate. Coxae 5-7 posteriorly rounded; posterior margin of the bases 5-7 sinuous and posteroventral corner pointed. Telson irregularly with wide and shallow rounded excavation.

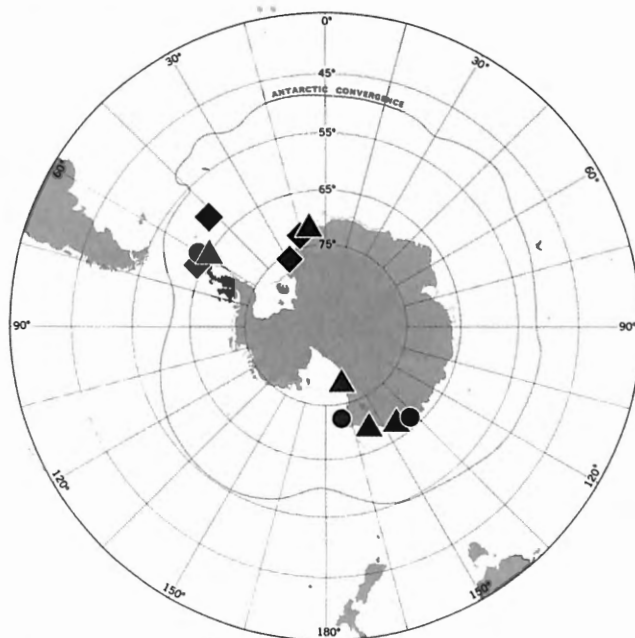
Size. Female 19 mm, male 16 mm.

Remarks. See remarks of *Gnathiphimedia barnardi* description and Table 4.

Type locality. South Orkney Islands: Signy Island, Borge Bay.

Distribution. South Orkney Islands; South Shetland Islands; Weddell Sea.

Depth range. 5-157 m.



Map 24. *Gnathiphimedia fuchsi*: rhomb; *Gnathiphimedia incerta*: circle; *Gnathiphimedia mandibularis*: triangle.

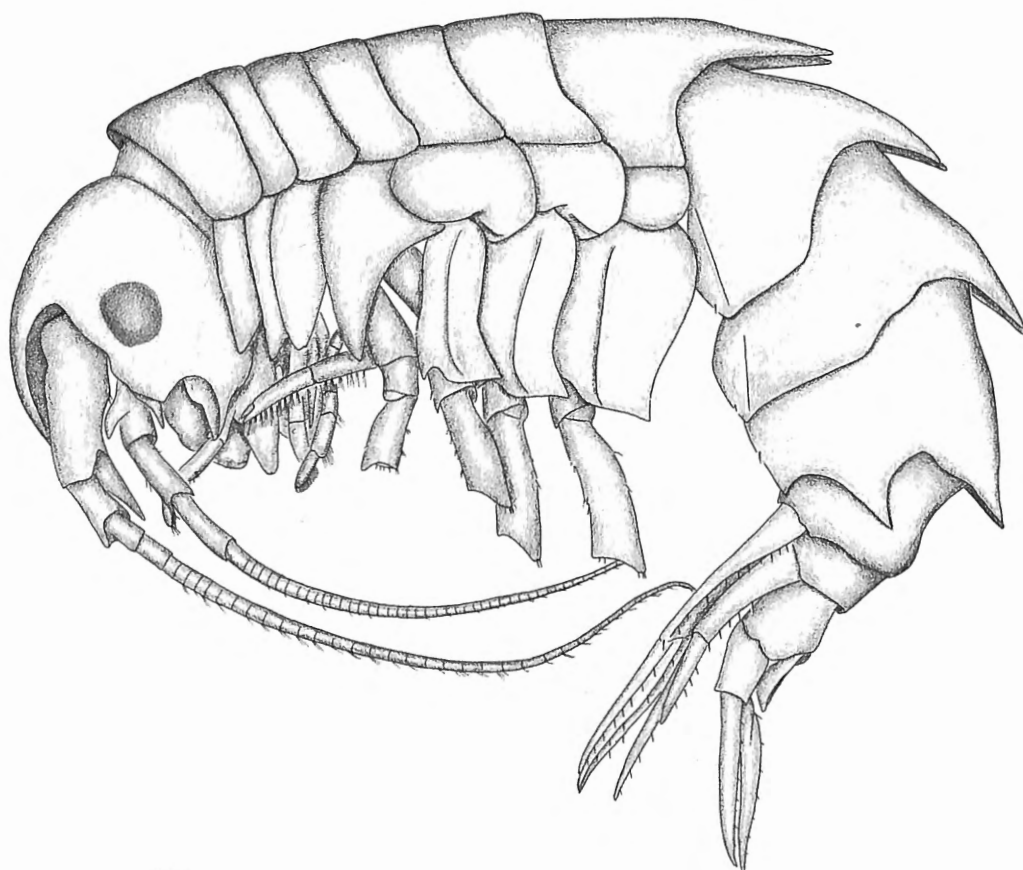


Fig. 47. *Gnathiphimedia fuchsi*. Left lateral view.

***Gnathiphimedia incerta* Bellan-Santini, 1972a**

(Figs. 48a-b, Colour plate 3h, Map 24: circle)

References and synonymy. De Broyer *et al.* 2007: 98.

Diagnosis. Dorsal armature with short paired teeth on pereonite 7 and pleonites 1-2. Posteroventral corners of anterior pereonites not produced, somewhat produced on posterior ones, mid-dorsal carinae on pleonites and ursomites wanting. Posterolateral process on epimeral plates 1-2 rounded and weakly produced, that of plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded, that of plates 2-3 pointed. Subantennal notch wide, with both margins drawn out into pointed tip, the posterior one longer, rather slender and not bent ventrally. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 exceeding beyond distal margin of article 3; longest process of peduncular article 2 exceeding beyond distal margin of article 3; 1st flagellar article of antenna 1 with „internal segmentation“. Upper lip entire. Mandibular body bulky, incisor not toothed, rounded, not cutting. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than

outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Apex of coxae 1-3 excavate distally (narrowly bifid). Coxa 4 pointed distally. Posterodistal margin of coxa 4 rather straight only weakly excavate. Pereopod coxae 5-6 posteriorly pointed; posterior margins of bases rather straight, posteroventral corner pointed. Pereopod 7 coxa posteriorly pointed; posterior margin of basis rounded, posteroventral corner pointed. Telson with narrow U-shaped excavation.

Size. Female 14.5-15 mm.

Remarks. *Gnathiphimedia incerta* is very difficult to discriminate from *Gnathiphimedia sexdentata*. The only useful discriminating character is the posterior process of the head notch that is slender in *G. incerta* and much stronger and slightly curved in *G. sexdentata*. There is another species, *G. macrops*, which bears some resemblance to *G. incerta* and *G. sexdentata*, for separating characters see in the remarks section of *G. macrops*.

Type locality. Adélie Coast: Géologie Archipelago.

Distribution. Adélie Coast; Ross Sea; South Shetland Islands.

Depth range. 60-426 m.

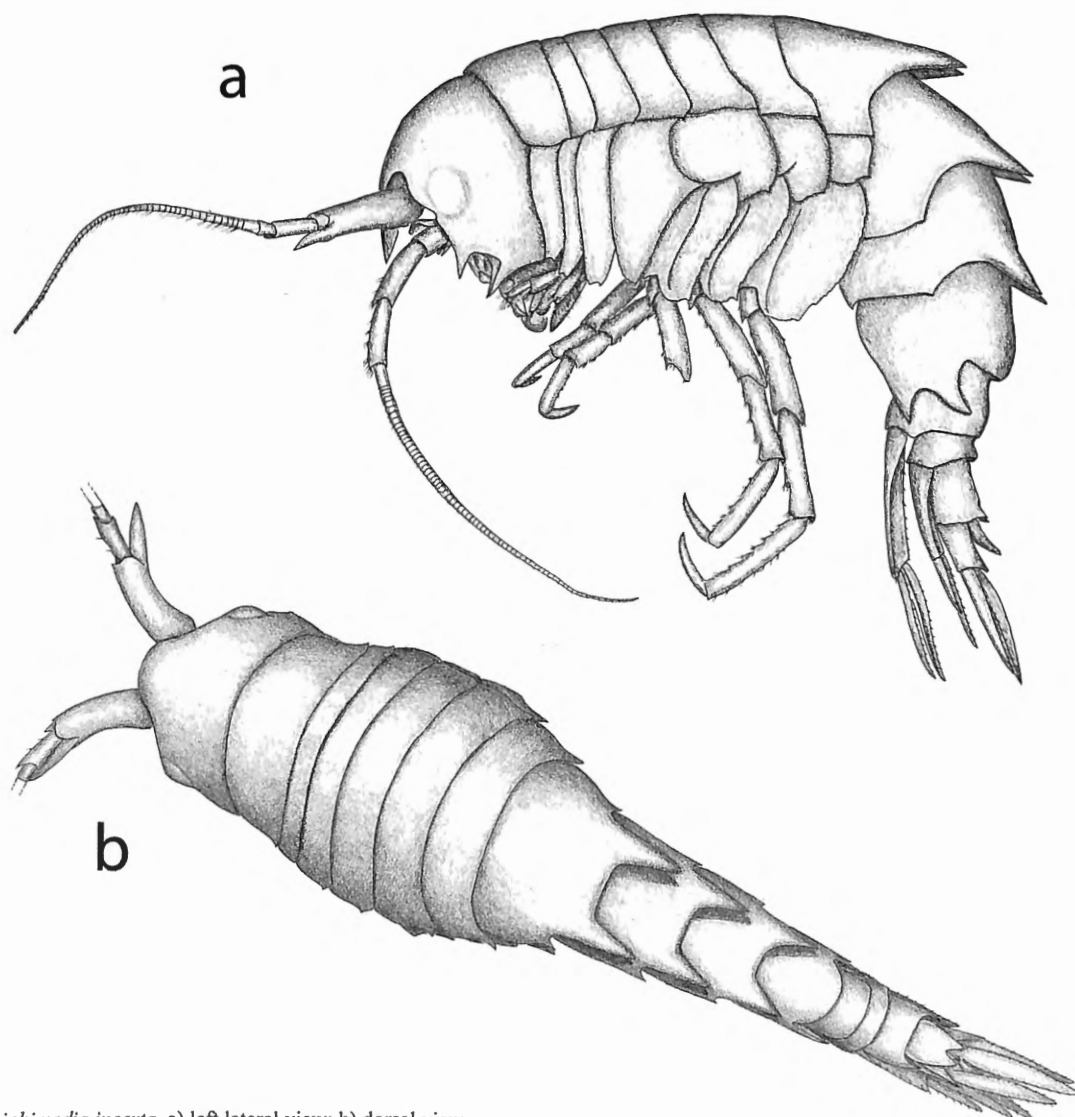


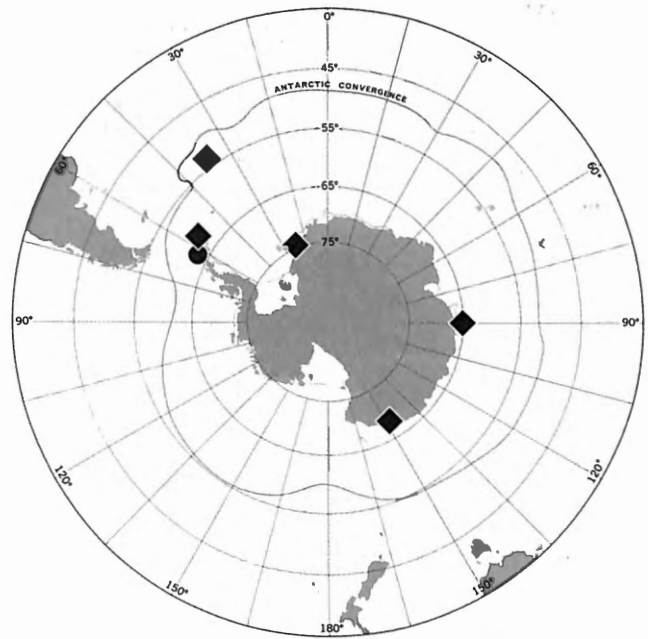
Fig. 48a-b. *Gnathiphimedia incerta*. a) left lateral view; b) dorsal view.

Gnathiphimedia macrops K.H. Barnard, 1932

(Fig. 49a-b, Map 25: rhomb)

References and synonymy. De Broyer *et al.* 2007: 98.

Diagnosis. Dorsal armature with short paired teeth on pereonite 7 and pleonites 1-2. Posteroventral corners not produced on anterior pereonites, somewhat pointed on posterior ones. Mid-dorsal carinae on pleonites and urosomites wanting. Posterolateral process on epimeral plates 1-2 slightly produced and rounded, on plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded, on plates 2-3 pointed. Subantennal notch narrow with its posterior margin drawn out into a long pointed tooth, anterior margin rounded distally. Antenna 1 distal margin of first article with 3 processes, longest process of peduncular article 1 exceeding beyond distal margin of article 2, longest process of peduncular article 2 exceeding beyond distal margin of first flagellar article. Upper lip entire. Mandibular body bulky; incisor not toothed, rounded, not cutting. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Apex of coxa 1 truncate to weakly excavate and oblique anterodistally and pointed distally. Coxae 2-3 pointed distally and truncate, oblique and shortly serrate anterodistally. Coxa 4 pointed distally, anteromarginally shortly serrate; posterodistal margin of coxa



Map 25. *Gnathiphimedia macrops*: rhomb; *Gnathiphimedia watlingi*: circle.

4 excavate. Coxae 5-6 posteriorly pointed; posterior margin of bases 5-6 straight and posteroventral corner pointed. Coxa 7 posteriorly angular to pointed, posterior margin of basis rounded and posteroventral corner pointed. Telson with shallow U-shaped excavation.

Size. Female 10-14 mm, male 11.5 mm.

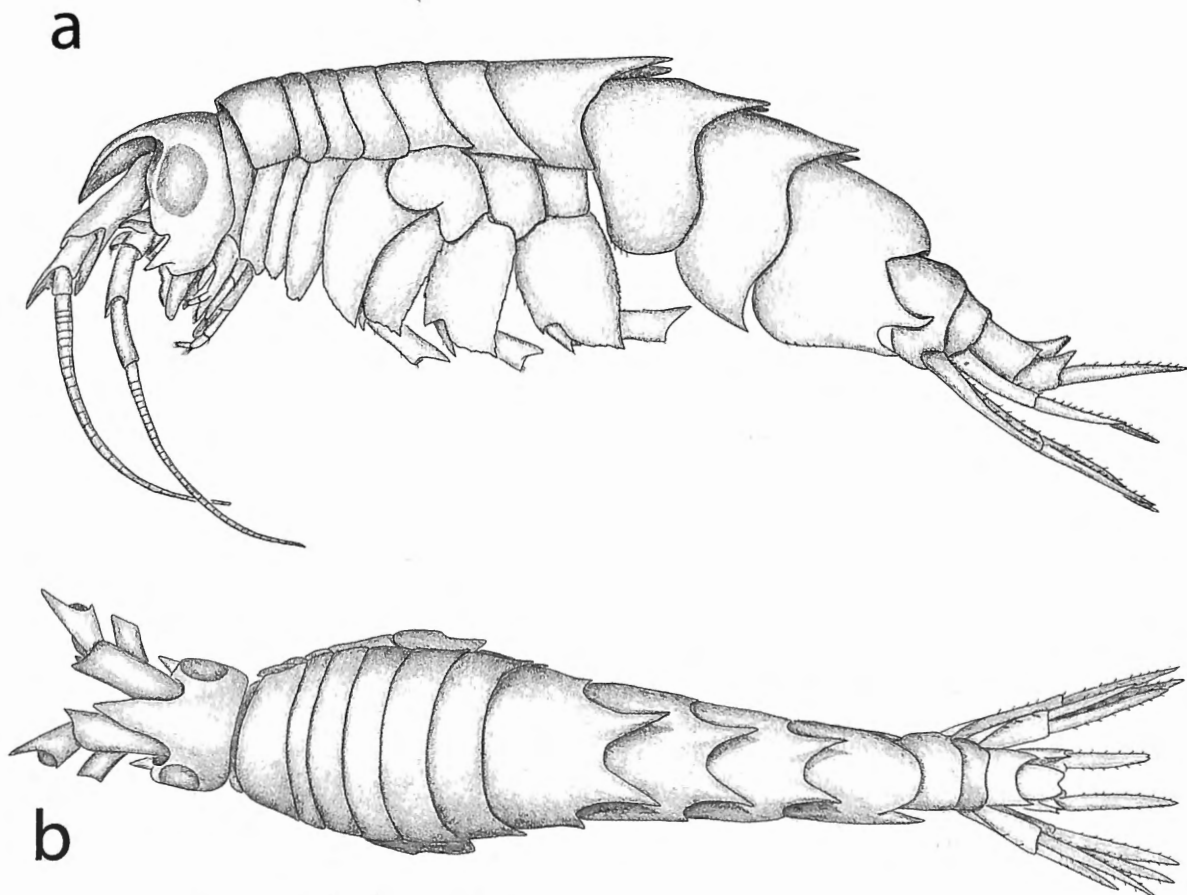


Fig. 49a-b. *Gnathiphimedia macrops*. a) left lateral view; b) dorsal view.

Remarks. There are 3 species in the genus *Gnathiphimedia* which have 3 pairs of dorsal processes: *G. incerta*, *G. sexdentata* and *G. macrops*. The last mentioned species has a characteristic long and slender posterior process on the narrow head notch and the longest process of peduncular article 1 of antenna 1 is no longer than the distal margin of the second article, whereas in the other two species the head notch is wide, the posterior process shorter and the longest process of antenna 1 peduncle article 1 exceeds beyond the 3 article.

Type locality. South Georgia: Cumberland Bay, Cape Saunders, Cumberland East Bay, 53°51'S 36°21'W.

Distribution. Adélie Coast; South Georgia; South Shetland Islands; Weddell Sea.

Depth range. 120-540 m.

***Gnathiphimedia mandibularis* K.H. Barnard, 1930**

(Fig. 50a-b, Colour plate 4b, Map 24: triangle)

References and synonymy. De Broyer *et al.* 2007: 98.

Diagnosis. Dorsal armature with paired teeth on pereonite 7 and pleonites 1-3. Posteroventral corners of anterior pereonites not produced, but somewhat produced on posterior ones. Mid-dorsal carinae on pleonites and urosomite 1 absent. Posterolateral process on epimeral plates 1-3 produced and

pointed, longest on plate 3. Posteroventral corner on epimeral plate 1 rounded and pointed on plates 2-3. Subantennal notch relatively wide, with both margins pointed, posterior process longer than anterior and wide. Antenna 1 distal margin of first article with 2 processes; longest process of peduncular article 1 exceeding beyond distal margin of article 3 (longer than 1st flagellar article in some descriptions, cf. K.H. Barnard, 1930); longest process of peduncular article 2 not exceeding beyond distal margin of article 3. Upper lip entire. Mandibular body bulky; incisor not toothed, rounded, not cutting. Maxilla 1 palp longer than outer plate; 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Apex of coxa 1 excavate with rounded anteroventral and pointed posteroventral corner. Coxae 2-4 pointed distally. Posterodistal margin of coxa 4 excavate. Coxae 5-7 posteriorly pointed. Posterior margin of the bases 5-7 straight to weakly sinuous and posteroventral corner pointed. Telson with narrow U-shaped excavation, about ¼ deep.

Size. Female 11-42 mm, male 7-36 mm.

Remarks. See remarks of *Gnathiphimedia barnardi* description and Table 4.

Type locality. Ross Sea: McMurdo Sound.

Distribution. Adélie Coast; South Shetland Islands; Ross Sea; Weddell Sea.

Depth range. 45-2000 m.

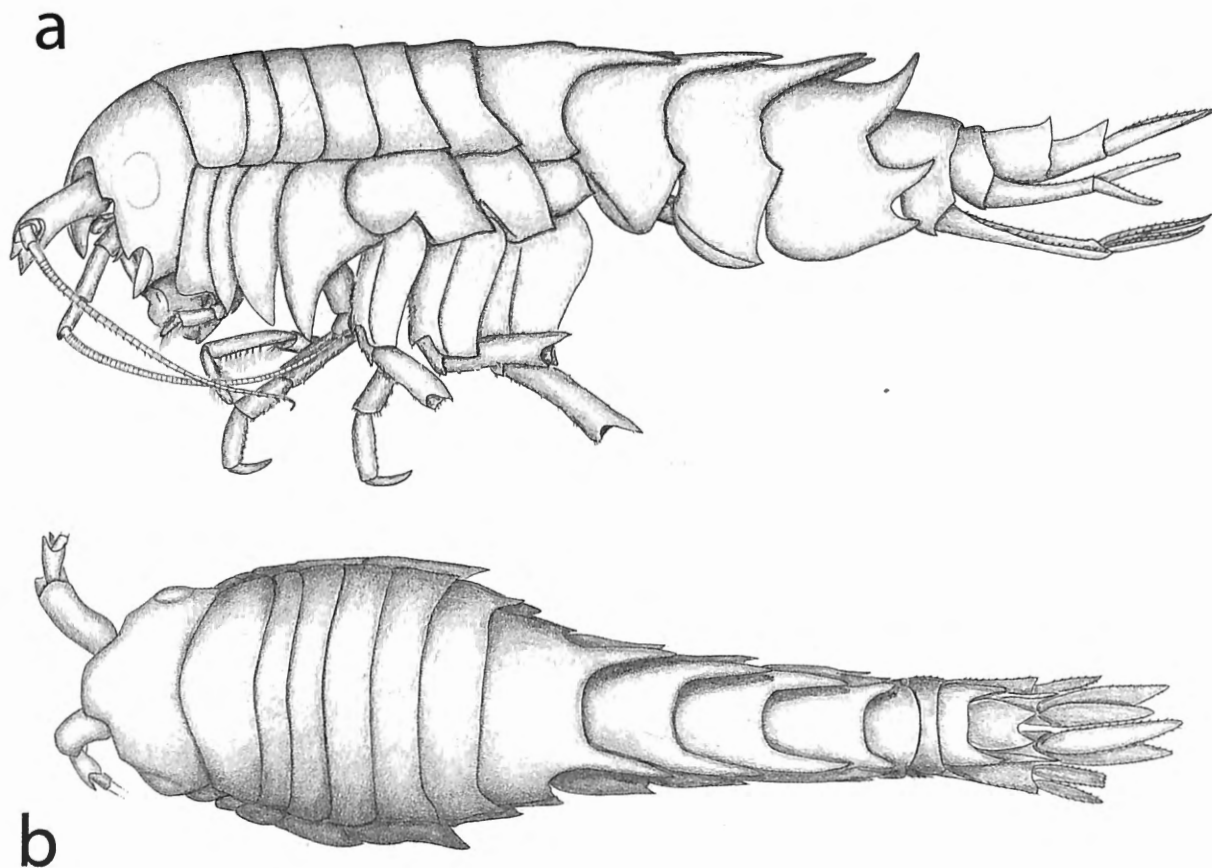


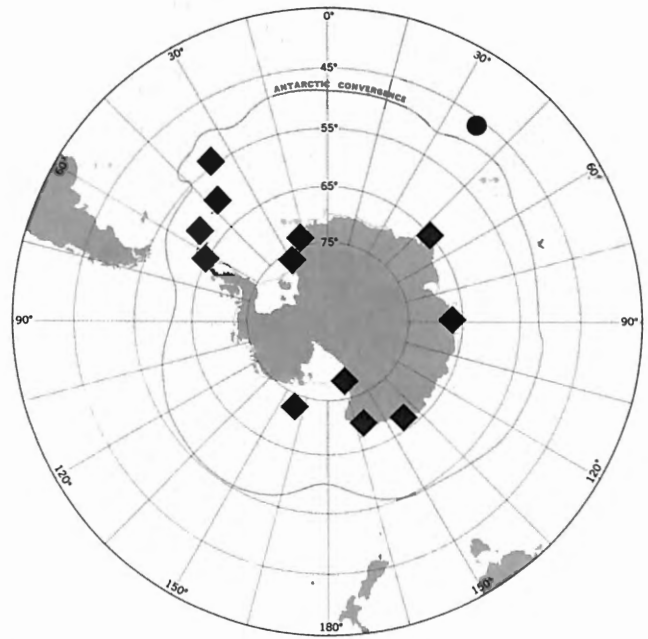
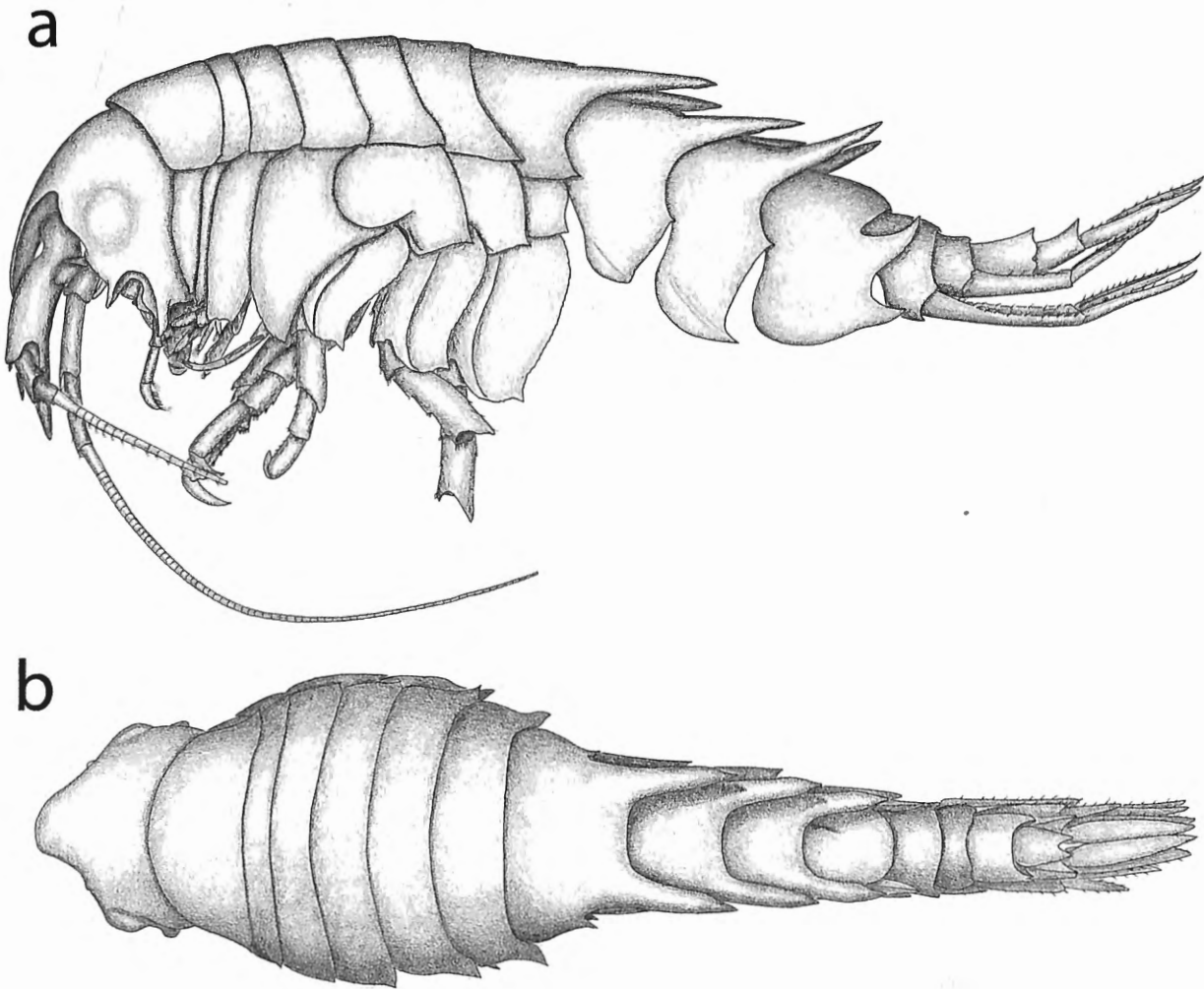
Fig. 50a-b. *Gnathiphimedia mandibularis*. a) left lateral view; b) dorsal view.

Gnathiphimedia sexdentata (Schellenberg, 1926a)

(Fig. 51a-b, Colour plate 4c, Map 26: rhomb)

References and synonymy. De Broyer *et al.* 2007: 99.

Diagnosis. Dorsal armature with long paired teeth on pereonite 7 and pleonites 1-2. Posteroventral corners of anterior pereonites not produced but pointed and posterior ones somewhat produced. Mid-dorsal carinae on pleonites and urosomites wanting. Posterolateral process on epimeral plates 1-3 produced and pointed, increasing in length progressively. Posteroventral corner on epimeral plate 1 rounded to angular; that of plates 2-3 pointed and produced. Subantennal notch wide and rounded, with both margins drawn out into tooth, posterior tooth somewhat longer and wide, bent ventrally and subacute, anterior one pointed. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 exceeding beyond distal margin of article 3, even longer than distal margin of 1st flagellar article, longest process of peduncular article 2 not exceeding beyond distal margin of article 3. Upper lip entire. Mandibular body bulky; incisor not toothed and rounded, not cutting. Lower lip with

Map 26. *Gnathiphimedia sexdentata*: rhomb; *Gnathiphimedia urodentata*: circle.Fig. 51a-b. *Gnathiphimedia sexdentata*. a) left lateral view; b) dorsal view.

rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Coxa 1 apex pointed distally, that of gnathopod 2 similar but slightly longer. Coxa 3 truncate or weakly excavate distally. Coxa 4 pointed distally and posterodistal margin excavate. Coxae 5-7 posteriorly pointed; posterior margin of bases 5-7 sinuous and posteroventral corner pointed. Telson with shallow and narrow U-shaped excavation.

Size. Female 15 mm, male 13-17.5 mm.

Remarks. *Gnathiphimedia sexdentata* is very difficult to discriminate from *Gnathiphimedia incerta*. The only character useful discriminating is the posterior process of the head notch that is slender in *G. incerta* and much stronger and slightly curved in *G. sexdentata*.

Type locality. Davis Sea: "Gauss Station".

Distribution. Adélie Coast; Bransfield Strait; Davis Sea; Enderby Land; Marguerite Bay; Palmer Archipelago; Ross Sea; South Shetland Islands; Weddell Sea; Wilhelm Archipelago.

Depth range. 9-720 m.

Gnathiphimedia urodentata Bellan-Santini & Ledoyer, 1987

(Fig. 52, Map 26: circle)

References and synonymy. De Broyer *et al.* 2007: 99.

Diagnosis. Dorsal armature with paired teeth on pereonites 6-7 and pleonites 1-3. Mid-dorsal carina-like teeth on pleonites 1-3 and urosomite 1, on pleonite 3 sometimes with 2 teeth. Posteroventral corners of pereonites strongly produced and pointed. Posterolateral process on epimeral plates 1-3 strongly produced and pointed. Posteroventral corner on epimeral plates 1-3 pointed. Subantennal notch relatively

wide, both margins drawn out into pointed processes, anterior process longer than posterior one. Antenna 1 distal margin of first article with 3 processes, longest process of peduncular article 1 exceeding beyond distal margin of article 3; longest process of peduncular article 2 exceeding beyond distal margin of article 3. Upper lip entire. Mandibular body bulky; incisor not toothed, rounded, not cutting. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Apex of coxae 1-2 narrow and pointed distally. Coxae 3-4 narrow and pointed distally. Posterodistal margin of coxa 4 strongly excavate. Coxae 5-7 posteriorly pointed; posterior margin of bases 5-7 excavate, with proxo-posteromarginal tooth, narrower excavation on basis 7; posteroventral corner of basis pointed and strongly produced. Telson with shallow and wide v-shaped excavation.

Size. Female 13 mm.

Remarks. This species has a unique dorsal armature. All other species bear 3 or 4 pairs of dorsal processes, but not mid-dorsal carinal teeth. In addition the excavate posterior margins of the bases 5-7 are not expressed in any other *Gnathiphimedia*. However, as the mandible incisor character is not always usable due to abrasion, it may be that this species could be classified in another genus in future. It bears some resemblance to *Pseudiphimediella* species and *Iphimedia acuticoxa* in the dorsal armature and the bases 5-7.

Type locality. Marion and Prince Edward Islands: Marion Dufresne 08, St. 13 CP 85, 46°56.3'S 37°55.6'E; St. 26 CP 135, 46°50.6'S 38°00.6'E.

Distribution. Only known from type locality.

Depth range. 120-145 m.

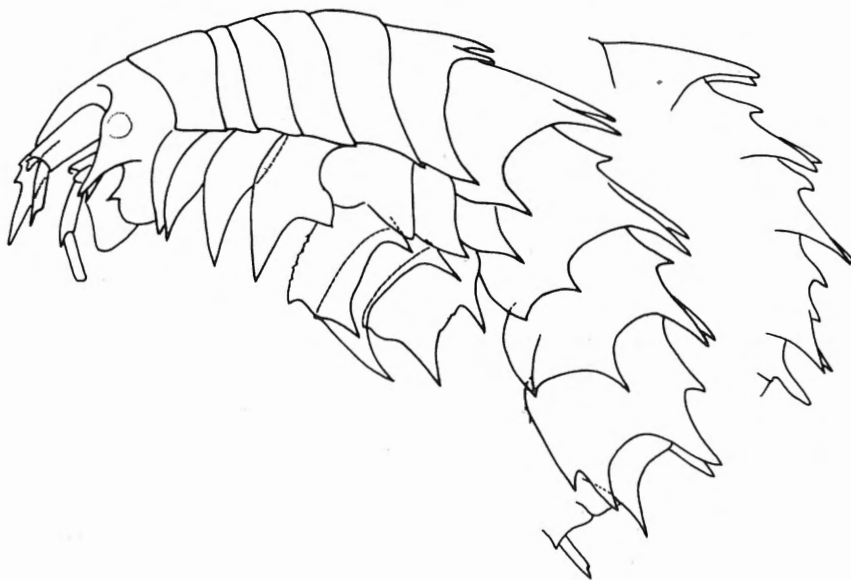


Fig. 52. *Gnathiphimedia urodentata*, redrawn after Bellan-Santini & Ledoyer, 1987. Left lateral view and variability of dorsal processes.

Gnathiphimedia watlingi Coleman, 1994

(Fig. 53a-b, Map 25: circle)

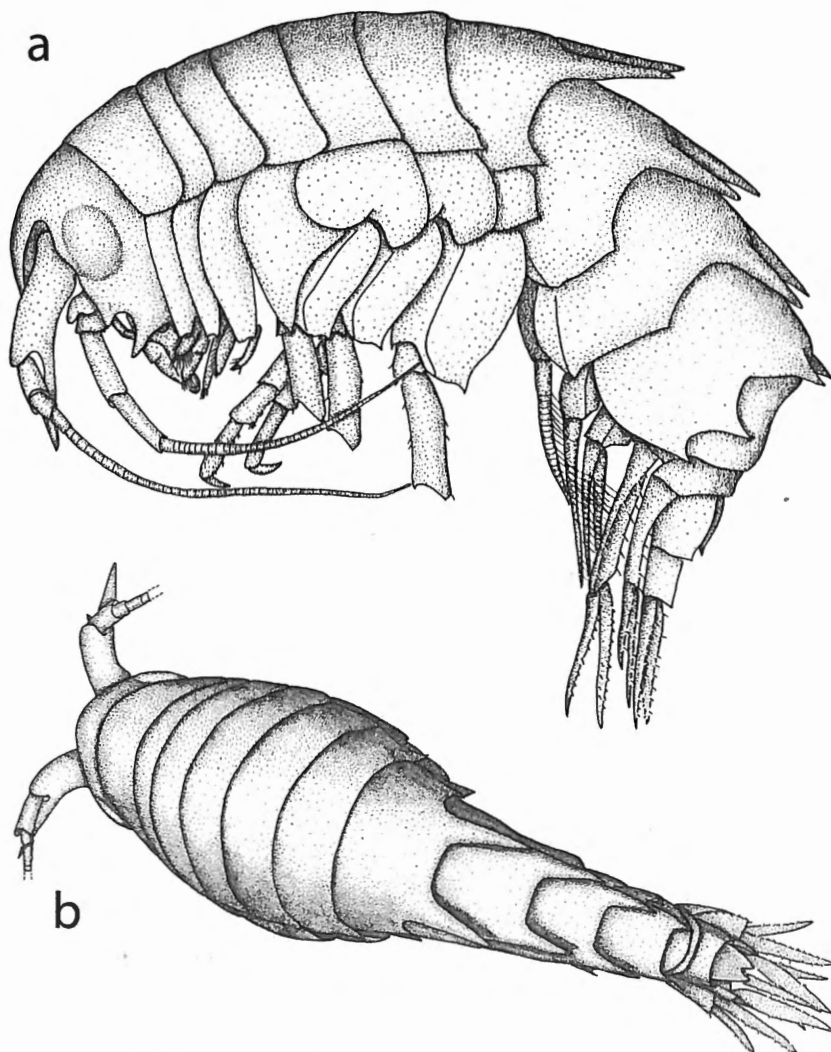
References and synonymy. De Broyer *et al.* 2007: 100.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-3, the posterior pair half the length of that on pleonite 2. Posteroventral corners of anterior pereonites rounded, somewhat pointed on posterior ones. Mid-dorsal carinae on pleonites and urosomites wanting. Posterolateral process on epimeral plates 1-3 produced and pointed, that of pleonite 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded, that of plates 2-3 pointed. Subantennal notch wide, anterior and posterior margin drawn out into short acute processes, the posterior one longer than anterior. Antenna 1 distal margin of first article with 2 processes; longest process of peduncular article 1 exceeding beyond distal margin of article 3; longest process of peduncular article 2 not exceeding beyond distal margin of article 3. Upper lip entire. Mandibular body bulky; incisor not toothed and rounded, not cutting. Lower lip with rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially not

produced forward and not guarding along inside of article 3. Apex of coxae 1-3 strongly tapering distally and weakly excavate. Coxa 4 pointed distally and posterodistal margin excavate. Coxae 5-6 posteriorly rounded that of pereopod 7 pointed; posterior margin of bases 5-7 weakly sinuous and posteroventral corner pointed. Telson with narrow U-shaped excavation.

Size. 16 mm.

Remarks. *Gnathiphimedia watlingi* resembles *Gnathiphimedia barnardi* Thurston (1974). It differs from *G. barnardi* as follows: eyes with no clear border (vs. distinctly outlined); antennae 1 and 2 have a long first flagellar article, whereas in *G. barnardi* it is segmented (at least the tissue is segmented, but the cuticle appears to be smooth in the paratype material that was examined); coxa 1 is triangular whereas in the drawing of *G. barnardi* it seems to be narrow; the posterior lateral margins of epimera 1-2 are pointed (vs. rounded in *G. barnardi*); the paired dorsal processes on pleonite 3 are shorter than on the preceding segments (vs. of the same length in *G. barnardi*); posterolateral process on epimeral plate 3 half way between the dorsal process and the posterodistal corner (vs. situated more ventrally); merus of pereopods 5-7 posterodistally moderately produced with small tip (vs. much produced and pointed); outer ramus of uropods 1-2 with

Fig. 53a-b. *Gnathiphimedia watlingi*. a) left lateral view; b) dorsal view.

setae on lateral margin (vs. unarmed according to the explicit description of Thurston (1974), however with setation in paratype material).

Watling and Holman (1981) described a specimen from the South Shetland Island as *G. barnardi*. It resembles *G. watlingi* in the following characters and might belong to *G. watlingi*: paired dorsal processes on pleonite 3 shortened compared to preceding segments, posterolateral projection on the margin of (at least) epimeral plate 2 pointed, and posterolateral tooth on margin of epimeral plate 3 positioned more dorsally than in *G. barnardi*.

Watling and Holman (1981) emphasized the similarity of *G. barnardi* and *Iphimediella margueritei*. Andres (1985) found a specimen which he determined as *I. margueritei*, although it had a nondentate, smooth mandibular incisor as found in *Gnathiphimedia*. Similar variation in mandible morphology was described by Nicholls (1938) in *I. margueritei*. In the "Terra Nova" expedition material examined, a typical *Iphimediella*-form dentate mandible was present in one specimen, but a *Gnathiphimedia*-form mandible in another. Both specimens show only slight differences in habitus. It is not clear if these distinctions in the mandible morphology indicate the existence of two similar species that are adapted to different food sources or if the mandibular incisors of this individual of *I. margueritei* are worn down by eating hard food. Compare also Table 4.

Type locality. 60°56.3'S 55°07.7'W.

Distribution. Only known from type locality.

Depth range. 388 m.

Iphimedia Rathke, 1843

Type-species. *Iphimedia obesa* Rathke, 1843

Diagnosis (modified after Barnard & Karaman, 1991). Dorsal side of body with teeth posteriorly or smooth. Antenna 1 peduncular article 2 shorter than 1. Mouthparts projecting conically. Upper lip scarcely incised or entire, epistome not very broad. Mandibular incisor ordinary, toothed or not; setal row absent; molar conically or obsolescent, simple. Lower lip inner lobes absent, outer notched or not. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate as long as but narrower than outer plate, latter elongate; palp article 2 apicomediaally produced; palp article 4 obsolescent or absent. Coxa 1-4 progressively longer: coxa 4 sometimes weakly polycuspidate. Gnathopods diverse, of similar size, carpus and propodus elongate, narrow, chelate. Telson entire to incised.

Iphimedia imparilabia Watling and Holman, 1980

(Fig. 54a-b, Map 27: rhomb)

References and synonymy. De Broyer *et al.* 2007: 100.

Diagnosis. Body with short, paired dorsal processes on pereonite 7 and pleonites 1-2, with mid-dorsal keel on pleonite 3, mid-dorsal carina on urosomite 1 absent. Posterolateral process on epimeral plate 1 rounded and weakly produced, on epimeral plate 2 rounded and weakly produced, and strongly produced and pointed on epimeral plate 3. Posteroventral corner on epimeral plates 1 and 2 rounded, on epimeral plate 3 angular. Subantennal notch very wide, its dorsal margin runs into wide, subacute lobe. Antenna 1 distal margin of first article without processes; peduncular article 2 with blunt dorsal tooth, not exceeding beyond distal margin of article 3. Upper lip truncate. Mandibular body elongate and strongly

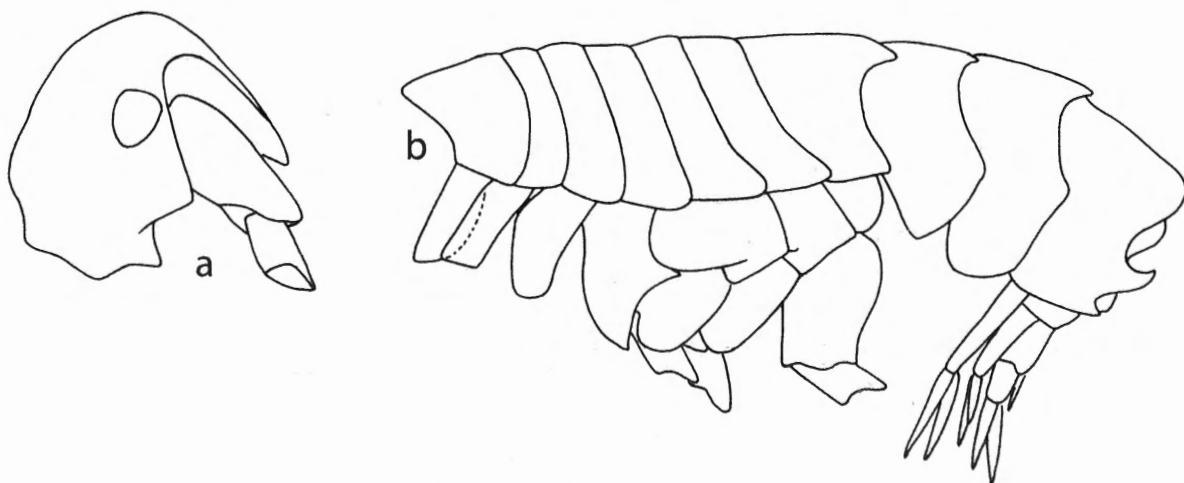
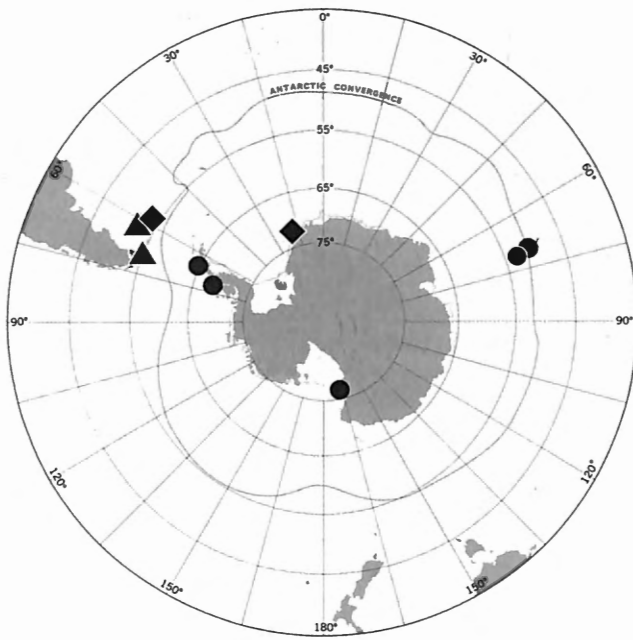


Fig. 54a-b. *Iphimedia imparilabia*, redrawn after Watling & Holman, 1980. a) head; b) left lateral view.



Map 27. *Iphimedia multidentata*: triangle; *Iphimedia imparilabia*: rhomb; *Iphimedia pacifica*: circle.

tapering distally, slightly spooned; incisor not toothed. Lower lip with mediobasal notches. Maxilla 1 palp shorter than outer plate, 2-articulate. Second article of maxilliped palp medially strongly produced guarding along inside of article 3, almost reaching apex of article 3. Gnathopod 1 apex of coxa rounded distally, anteroventral corner angular; basis strongly concave anteromarginally and convex posteromarginally; carpus = 1.75 x propodus, the latter chelate. Gnathopod 2 coxa with truncate slightly oblique apex, carpus subequal to propodus, chelate. Coxa 3 rounded distally. Coxa 4 pointed distally, posterodistal margin excavate. Pereopod 5 coxa posteriorly angularly pointed; posterior margin of basis rounded, posteroventral corner rounded. Pereopod 6 coxa posteriorly angularly pointed; posterior margin of basis rounded, posteroventral angle rounded. Pereopod 7 coxa posteriorly rounded; posterior margin of basis weakly sinuous, posteroventral corner subacutely pointed. Telson with shallow and wide v-shaped excavation (weakly emarginate).

Size. Male 7 mm.

Remarks. The form of the dorsal body processes of this species closely resembles those of several other species in the genus; however, the following mouthpart characters distinguish it from all other species of the genus: lower lip with unequal lobes; very short palp article 3 and lack of setae on outer margin on the maxilliped.

Type locality. 53°07'08"S 59°21'23"W.

Distribution. Known only from type locality.

Depth range. 567-578 m.

Iphimedia macrocystidis (K.H. Barnard, 1932)

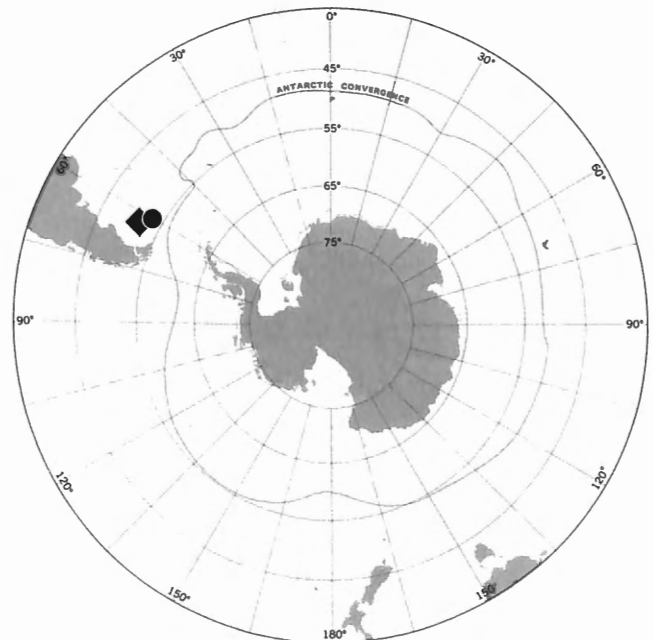
(Fig. 55a-b, Map 28: circle)

References and synonymy. De Broyer *et al.* 2007: 100.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-2; posteroventral corners of pereonites strongly produced and pointed; pointed mid-dorsal carinae on pleonites 1-3; mid-dorsal carina on urosomite 1 absent. Posterolateral process on epimeral plates 1-3 produced and pointed, strongly curved upwards on pleonite 3; posteroventral corner on epimeral plate 1 rounded, on plates 2-3 pointed. Posteroventral angle of pereonites 4-7 pointed. Subantennal notch not present, but a wide, shallow excavation with a slender, pointed, forwards curved tooth posteriorly. Eyes small, oval. Antenna 1 distal margin of first article with 2 processes; first peduncular article longer than second. Mandibular body elongate and strongly tapering distally; incisor not toothed, truncate. Maxilla 1 palp shorter than outer plate; 2-articulate. Second article of maxilliped palp medially produced guarding along inside of article 3. Gnathopod 1 apex of coxa subacutely pointed distally; basis concave anteromarginally and convex posteromarginally. Apex of coxae 2-3 truncate. Coxa 4 pointed distally, posterodistal margin excavate. Pereopod coxae 5-7 posteriorly pointed; posterior margin of bases multicuspitate, with the proximo-posteromarginal tooth longest and posteroventral corner pointed. Telson with narrow U-shaped excavation.

Size. Ovigerous female 8 mm.

Remarks. *Iphimedia macrocystidis* is very similar to *Iphimedia multidentata*. The latter species has pereopod 7 coxa bicuspidate, whereas in *I. macrocystidis* only the ventral process is well developed. Furthermore the posterolateral process on epimeral plate 3 is situated more dorsally in *I. macrocystidis*.



Map 28. *Iphimedia magellanica*: rhomb; *Iphimedia macrocystidis*: circle.

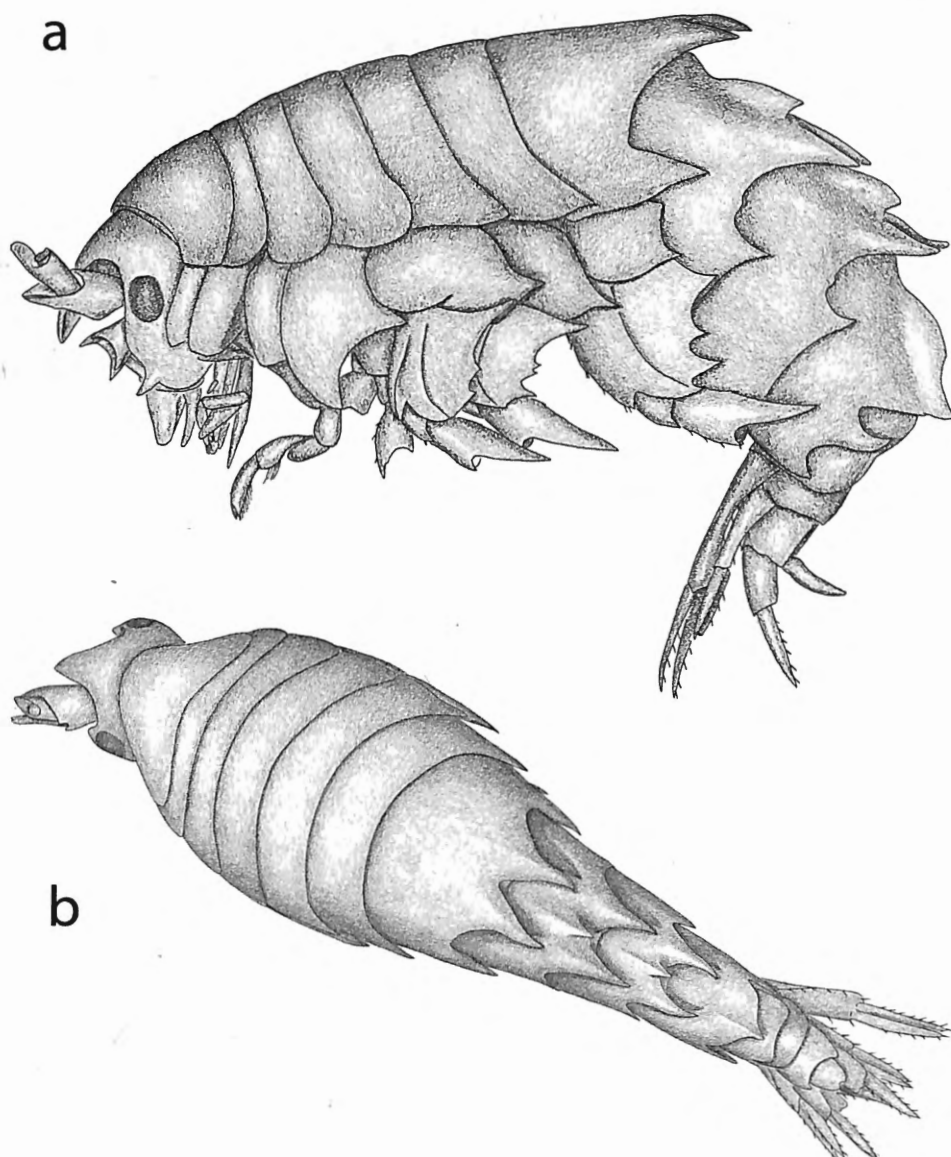


Fig. 55a-b. *Iphimedia macrocystidis*. a) left lateral view; b) dorsal view.

Type locality. Falkland Island, Discovery St. 53, Port Stanley.

Distribution. Only known from type locality.

Depth range. 0-2 m.

Iphimedia magellanica Watling & Holman, 1980

(Fig. 56a-b, Map 28: rhomb)

References and synonymy. De Broyer *et al.* 2007: 100.

Diagnosis. Short paired teeth on pereonite 7 and pleonites 1-2; posteroventral corners of pereonites 1-4 not produced, somewhat produced on pereonites 5-7; shallow mid-dorsal keel-like elevations on pleonites 1-3 (on pleonite 3 largest); mid-dorsal carina on urosomite 1 absent. Posterolateral process on epimeral plates 1 and 2 produced and pointed; on plate 3 strongly produced and pointed. Posteroventral corner

on epimeral plates 1-2 rounded, on pleonite 3 produced, pointed and curved upwards. Subantennal notch not present, only weakly excavated and with pointed anteroventral tooth. Antenna 1 first peduncular article longer than second; distal margin of first article with 2 processes; longest process of peduncular article 1 barely exceeding beyond distal margin of article 2. Upper lip entire and rounded apically. Mandibular body elongate and strongly tapering distally; incisor not toothed, pointed. Lower lip with variably mediolateral notches. Maxilla 1 palp shorter than outer plate, 2-articulate. Second article of maxilliped palp medially produced guarding along inside of article 3 (less than half the length of article 3). Gnathopod 1 apex of coxa roundly pointed apically; basis sinuous; carpus = 1.67 x propodus. Coxa 2 with truncate apex. Coxa 3 rounded distally. Coxa 4 pointed distally, posterodistal margin excavate. Pereopod 5 coxa posteriorly rounded; posterior margin of basis multicuspidate (tricuspidate), posteroventral corner pointed.

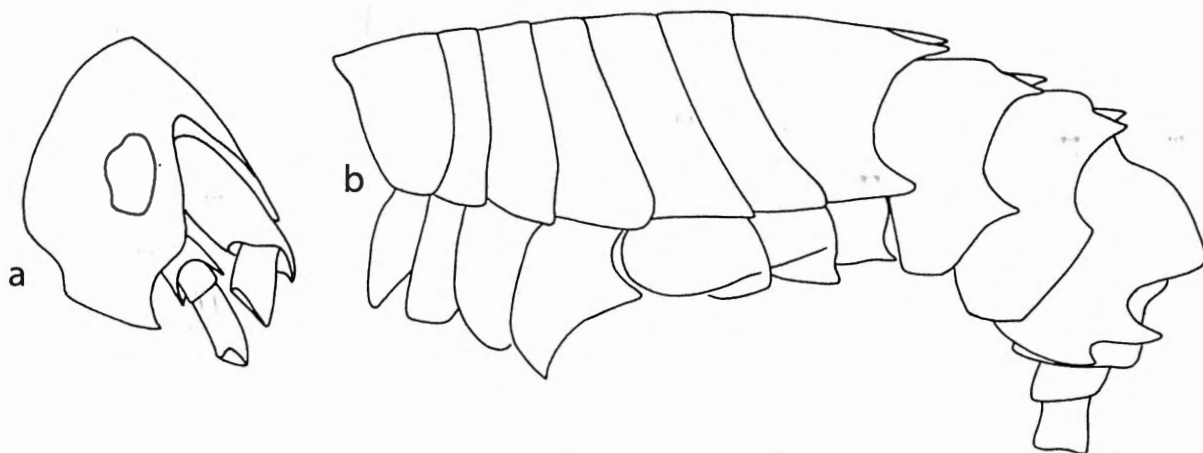


Fig. 56a-b. *Iphimedia magellanica*, redrawn after Watling & Holman, 1980. a) head; b) left lateral view.

Pereopod 6 coxa posteriorly subacutely pointed; posterior margin of basis tricuspidate, posteroventral corner pointed. Pereopod 7 coxa pointed posteriorly; posterior margin of basis tricuspidate, posteroventral corner pointed. Telson with shallow and wide v-shaped excavation.

Size. Ovigerous female 6 mm.

Remarks. Similar to *Iphimedia macrocystidis*, but with no dentate mid-dorsal carinae, just keel-like elevations. Similar also to *Iphimedia pacifica*, but this species does not have polycuspidate bases 5-7 and different from *I. macrocystidis* it has a clear subantennal notch.

Type locality. Magellan area: Eltanin 11, St. 977, 52°32'S 63°53'W.

Distribution. Only known from type locality.

Depth range. 299 m.

Iphimedia multidentata (Schellenberg, 1931a)

(Fig. 57a-b, Map 27: triangle)

References and synonymy. De Broyer *et al.* 2007: 100.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-2; mid-dorsal carinae on pleonites 1-3; mid-dorsal carina on urosomite 1 absent; posteroventral corners of pereonites 4-7 strongly produced and pointed. Posterolateral process on epimeral plates 1-3 produced and pointed. Posteroventral corner on epimeral plate 1 rounded and that of plates 2-3 pointed. Subantennal notch absent, only a shallow and wide excavation below the ocular lobe, with a narrow, pointed tooth anteroventrally. Antenna 1 first peduncular article longer than second; distal margin of first article with 2 processes; longest process of peduncular article 1 barely exceeding beyond distal margin of article 2; longest process of peduncular article 2 barely exceeding beyond distal margin of article

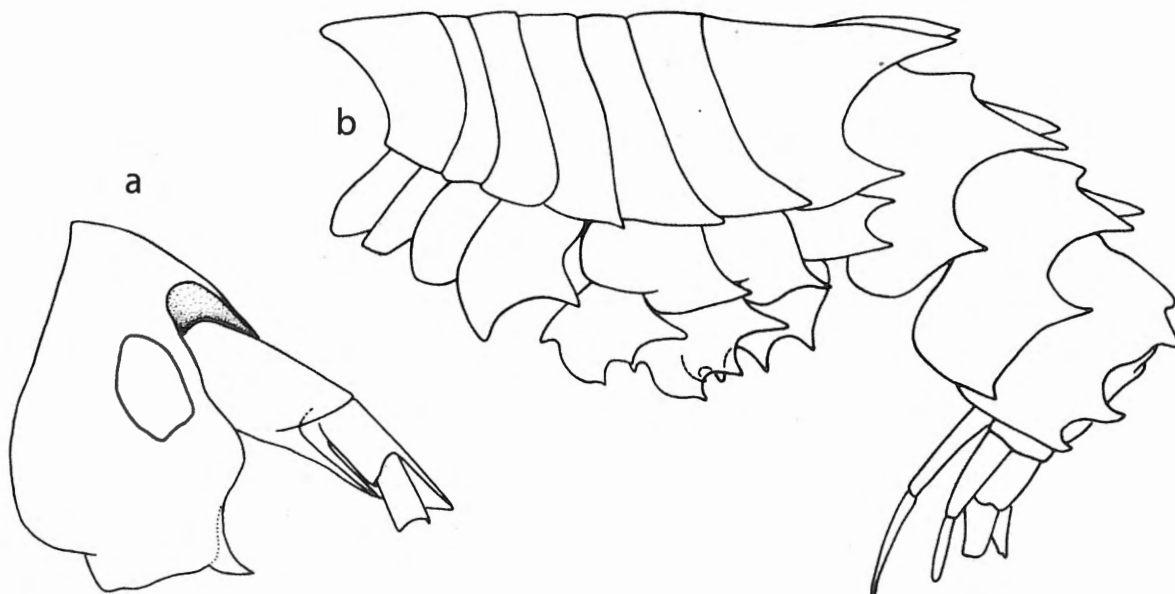


Fig. 57a-b. *Iphimedia multidentata*, redrawn after Watling & Holman, 1981. a) head; b) left lateral view.

3. Upper lip entire. Mandibular body elongate and strongly tapering distally; incisor rounded, untoothed; lacinia mobilis on both mandibles, that on right mandible bidentate. Lower lip with mediodistal notches and pointed apices. Maxilla 1 palp shorter than outer plate, 2-articulate. Second article of maxilliped palp medially produced guarding along inside of article 3. Gnathopod 1 apex of coxa subacutely pointed distally to rounded distally; basis concave anteromarginally and convex posteromarginally; carpus = 1.88 x propodus. Coxa of gnathopod 2 with subtruncate apex. Pereopod 3 coxa wide and rounded distally. Coxa 4 pointed distally, posterodistal margin excavate. Coxae 5-7 pointed posteriorly; posterior margin of bases 5-7 tricuspidate, proximo-posteromarginal tooth longest; posteroventral corner of basis pointed. Telson with shallow, wide v-shaped excavation and pointed apices.

Size. 10-12 mm.

Remarks. Similar to *I. macrocystidis*. See there for remarks.

Type locality. Magellan area: Elizabeth Island, beach; Rio Seco; Harris Bay, Picton Island, Banner Cove; Magellan Sound; Falkland Islands: 52°29'S 60°36'W; 53°45'S 61°10'W; 52°S 59°W.

Distribution. Magellan region, Falkland Islands.

Depth range. 5-285 m.

Iphimedia pacifica Stebbing, 1883

(Fig. 58, Map 27: circle)

References and synonymy. De Broyer *et al.* 2007: 101.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-2; mid-dorsal carinae on pleonites 1-3; mid-dorsal carina on urosomite 1 absent; posteroventral corners of pereonites strongly produced and pointed. Posterolateral process on

epimeral plates 1-3 strongly produced and pointed, that on pleonite 3 slender and curved upwards. Posteroventral corner on epimeral plates 1-3 strongly pointed. Subantennal notch wide, with a short pointed tooth anteriorly and a slightly longer pointed tooth posterior. Antenna 1 first peduncular article longer than second, distal margin of first article with 3 short processes, longest process of peduncular article 1 not exceeding beyond distal margin of article 2. Upper lip entire, with weak apical depression. Mandibular body elongate and strongly tapering distally; incisor toothed, with apical teeth and with teeth along medial side. Lower lip with pointed apices and mediodistal notches. Maxilla 1 palp slightly longer than outer plate, 2-articulate. Second article of maxilliped palp medially produced guarding along inside of article 3. Gnathopod 1 apex of coxa pointed distally and serrate anteromarginally; basis concave anteromarginally and convex posteromarginally; carpus = 1.27 x propodus. Coxa 2-3 pointed distally, and serrate anteromarginally. Coxa 4 pointed distally, posterodistal margin excavate. Coxae 5-7 pointed and strongly produced posteriorly; posterior margin of bases 5-7 sinuous, posteroventral corner pointed, posterior and ventral margin serrate. Telson with wide and shallow rounded excavation and with narrow U-shaped excavation and pointed posterolateral tips.

Size. 8 mm.

Remarks. Similar to *Iphimedia magellanica* in respect of the keel-like mid-dorsal pleonite carinae. However, the paired dorsal teeth are longer, there is a real subantennal notch and the bases 5-7 are not polycuspidate in *I. pacifica*.

Type locality. Off Heard Island, 52°04'S 71°22'E; Iles Kerguelen: Cumberland Bay.

Distribution. Heard Island; Kerguelen Islands; Ross Sea; Marguerite Bay; Wilhelm Archipelago.

Depth range. 36-416 m.

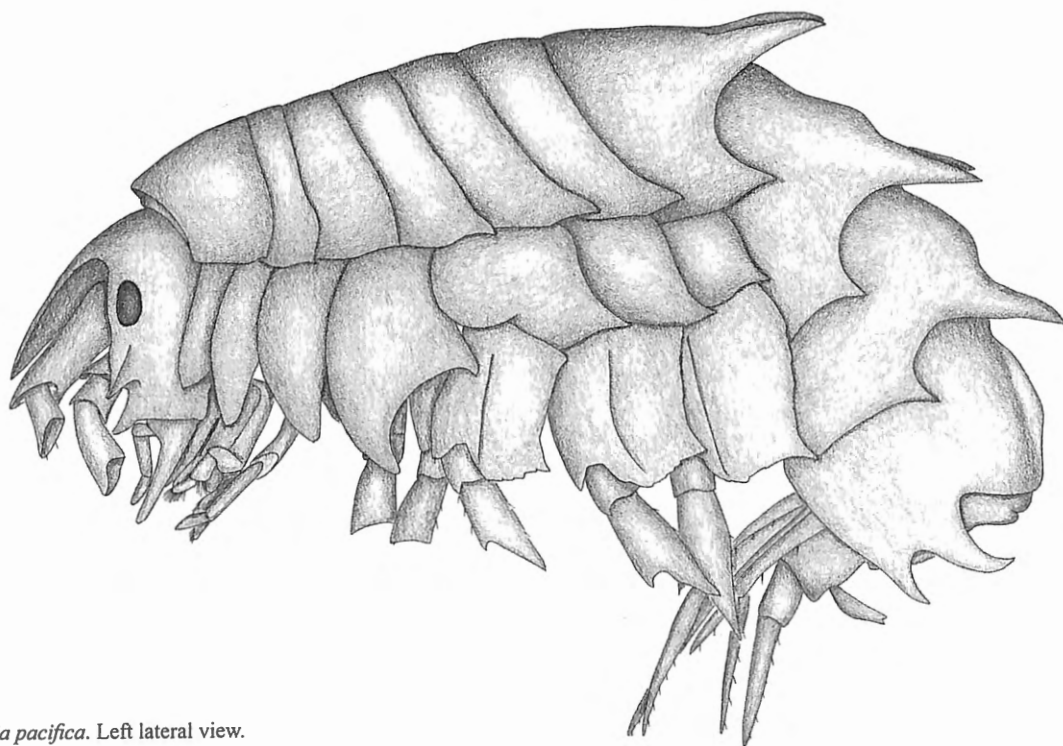


Fig. 58. *Iphimedia pacifica*. Left lateral view.

Iphimediella Chevreux, 1911c

Type-species. *Iphimediella margueritei* Chevreux, 1912a

Diagnosis (modified after Barnard, 1969). Antenna 1 accessory flagellum uniarticulate; epistome not broad, less than 3 times as wide as high. Upper lip entire or weakly incised. Mandible incisor elongate; not excessively thickened or broadened, oriented to cut in transverse plane. Lower lip without inner lobes, distal apices generally subacute. Maxilla 1 palp bi-articulate, reaching end of outer plate. Maxilliped palp 4-articulate; article 2 scarcely or not produced; gnathopods 1 and 2 chelate; telson slightly cleft.

Iphimediella acuticoxa Watling & Holman, 1980

(Fig. 59a-b, Map 29: circle)

References and synonymy. De Broyer *et al.* 2007: 101.

Diagnosis. Dorsal armature with paired teeth on pereonite 7 and pleonites 1-3, last pair being somewhat turned upwards; space between paired dorsal processes narrow, with additional U-shaped excavation of the dorsal surface close to the posterior segmental margin; posteroventral

corners of pereonites strongly produced and pointed; weak mid-dorsal keel on pleonites 1-3; weak mid-dorsal carina on urosomite 1 present. Posterolateral process on epimeral plates 1-2 strongly produced and pointed; that of pleonite 3 strongly produced and pointed (but shorter compared to those on pleonites 1-2). Posteroventral corner on epimeral plates 1-3 pointed. Subantennal notch on head not deep, narrow, anterior and posterior margin produced into pointed teeth, posterior tooth somewhat longer. Antenna 1 first peduncular article longer than second, but both rather short; distal margin of first article with 2 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2. Upper lip rounded distally, entire. Mandibular body elongate and strongly tapering distally; incisor along the medial side of the mandibular body, not toothed; molar a short, setose, flat-topped protruberance; lacinia mobilis on both sides present. Lower lip with mediodistal notches. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially weakly produced guarding along inside of article 3. Gnathopod 1 apex of coxa rounded distally and shortened, about half the length of coxa 4; basis somewhat concave anteromarginally and convex posteromarginally; carpus = 1.15 x propodus. Coxa 2 rounded distally, weakly longer compared to coxa 1. Coxa 3 pointed distally, with an addition small tooth posteriorly close to the

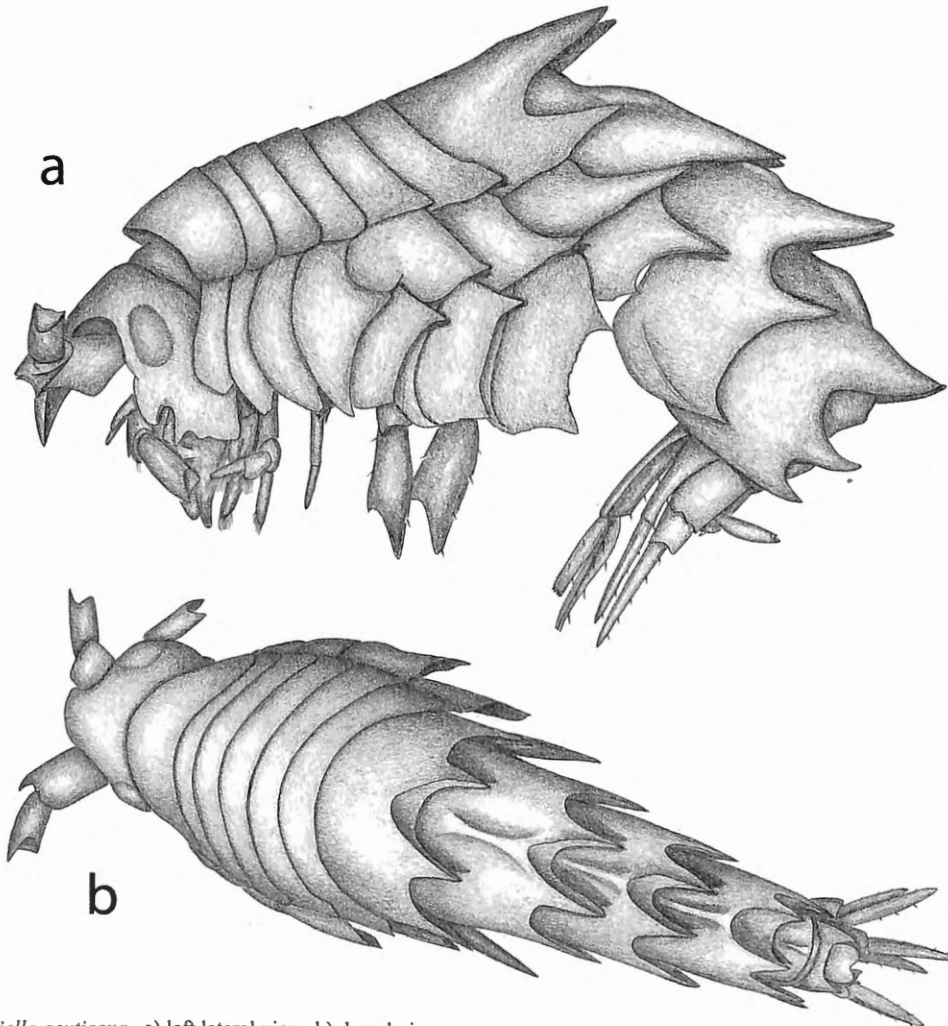
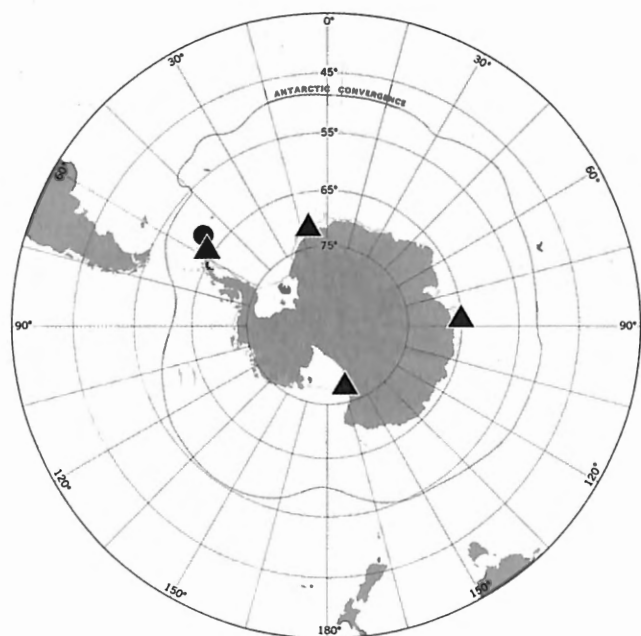


Fig. 59a-b. *Iphimediella acuticoxa*. a) left lateral view; b) dorsal view.



Map 29. *Iphimediella acuticoxa*: circle; *Iphimediella bransfieldi*: triangle.

apex. Coxa 4 pointed distally, posterodistal margin excavate. Pereopod 5 coxa posteriorly pointed and strongly drawn out; posterior margin of basis excavate, long tooth proximo-posteromarginally, posteroventral corner angular. Pereopod 6 coxa posteriorly pointed and drawn out considerably; posterior margin of basis excavate; posteroventral corner pointed and shorter than proximo-posteromarginal process. Pereopod 7 coxa posteriorly pointed and strongly drawn out; posterior margin of basis excavate, proximo-posteromarginal process is located more ventrally compared to bases 5-6; posteroventral corner of bases pointed. Telson with shallow and wide v-shaped excavation.

Size. 5-9 mm.

Remarks. This species bears some resemblance to *Iphimediella paracuticoxa* with respect to the acutely produced hind margins of coxae 5-7. Maxilliped palp article 2 is in both species expanded medially and slightly produced. However, in *I. paracuticoxa* the excavation between the dorsal processes narrows very much anteriorly whereas in *I. acuticoxa* it is wide and rounded.

Type locality. Graham Land: Eltanin 12, St. 1003: 62°41'S 54°43'W.

Distribution. Only known from type locality.

Depth range. 146-220 m.

Iphimediella bransfieldi K.H. Barnard, 1932

(Fig. 60a-b, Map 29: triangle)

References and synonymy. De Broyer *et al.* 2007: 101.

Diagnosis. Dorsal armature with paired teeth on pereonite 7 and pleonites 1-2; space between paired dorsal processes narrow, U-shaped; posteroventral corners of pereonites not produced on anterior pereonites, somewhat produced on pereonites 5-7; weak mid-dorsal carinae on pleonites 1-3; mid-dorsal carina on urosomite 1 as weak elevation present. Posterolateral process on epimeral plates 1-2 weakly produced and pointed; on epimeral plate 3 strongly produced, pointed and upturned. Posteroventral corner on epimeral plate 1-3 pointed. Subantennal notch of head with both margins drawn out into equally short tips. Antenna 1 first peduncular article longer than second; distal margin of first article with 3 processes; longest process of peduncular article 1 slightly exceeding beyond distal margin of article 2; longest process of peduncular article 2 exceeding beyond distal margin of article 3. Upper lip weakly incised. Mandibular body elongate and strongly tapering distally; incisor with teeth along medial side (and 1 strong tooth apically); mandibular molar conical; strong, with apical tuft of short hairs. Lower lip apically narrow, with rounded unnotched lobes. Maxilla 1 palp longer than outer plate, 2-articulate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Apex of coxa 1 excavate with rounded anteroventral and pointed posteroventral corner. Coxa 2 narrowed with truncate apex. Coxa 3 narrowed with truncate apex. Coxa 4 pointed distally, posterodistal margin straight to weakly excavate. Pereopod 5 coxa posteriorly pointed; posterior margin of basis rounded to straight, posteroventral corner pointed. Pereopod 6 coxa posteriorly pointed; posterior margin of basis rounded, posteroventral corner pointed. Pereopod 7 coxa posteriorly pointed; posterior margin of basis weakly sinuous, posteroventral corner pointed. Telson with shallow and wide v-shaped excavation.

Size. Female 14-22 mm.

Remarks. There are a few *Iphimediella* species with a typical coxa 1, where the anterodistal angle is rounded, the apex excavate and the posterodistal angle pointed. Besides *I. bransfieldi*, *I. georgei*, *I. rigida*, *I. serrata* and *I. microdentata* have this shape of the first coxa. However, only *I. georgei* has a similar dorsal arrangement, three pairs of dorsal processes with additional shallow pleon keels, but in this species the dorsal keel on pleonite 3 is drawn out posteriorly into a rounded process.

Type locality. Bransfield Strait: Discovery St. 175, 63°17'S 59°48'W.

Distribution. Bransfield Strait; Davis Sea; Ross Sea; Weddell Sea.

Depth range. 200-399 m.

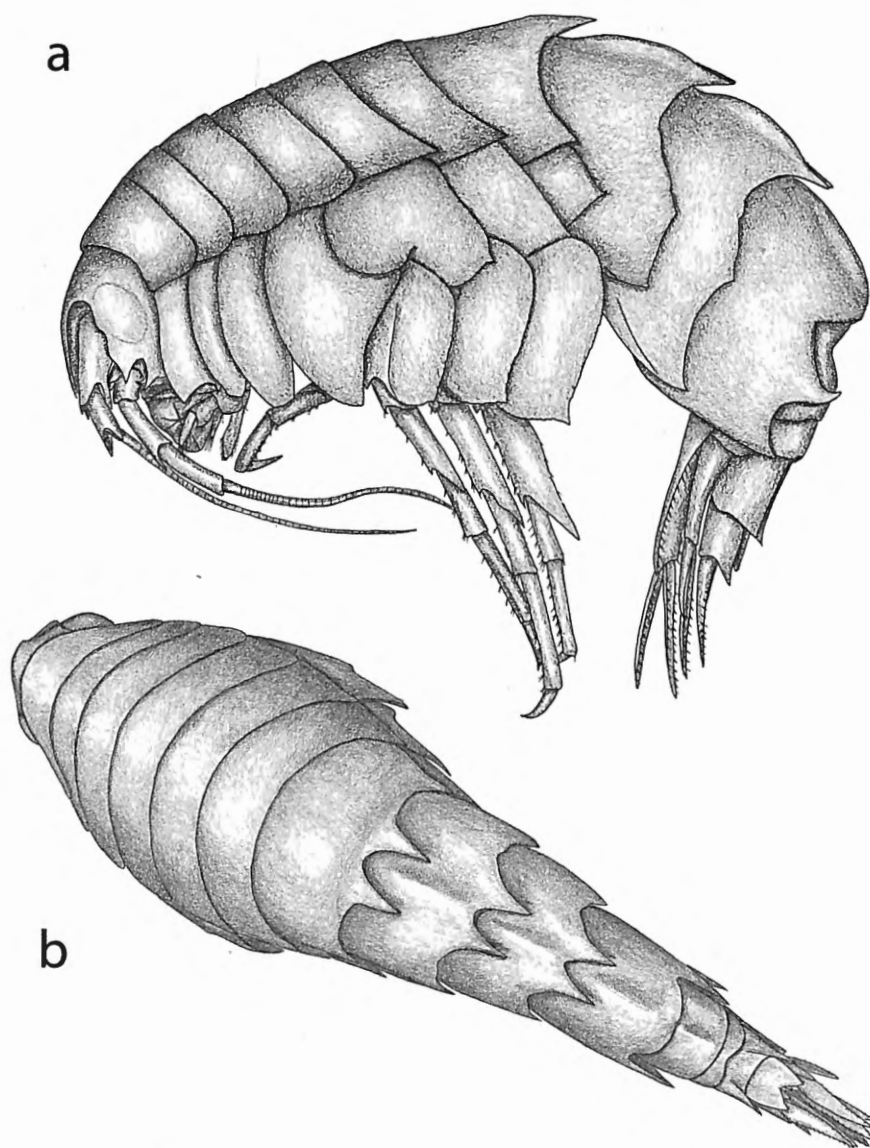


Fig. 60a-b. *Iphimediella bransfieldi*. a) left lateral view; b) dorsal view.

***Iphimediella cyclogena* K.H. Barnard, 1930**

(Fig. 61a-b, Map 30: rhomb)

References and synonymy. De Broyer *et al.* 2007: 102.

Diagnosis. Dorsal armature with long paired teeth on pereonite 7 and pleonites 1-3; posteroventral corners of pereonites not produced on anterior and produced on posterior pereonites; mid-dorsal carinae on pleonites and urosomites wanting. Posterolateral process on epimeral plates 1-2 produced and pointed, on plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded; that of plates 2-3 pointed. Subantennal notch of head narrow, with posterior margin rounded and anterior margin acutely produced. Antenna 1 first peduncular article longer than second; distal margin of first article with 2 processes; longest process of peduncular article 1 somewhat exceeding beyond distal margin of article 2; longest process of peduncular article 2 not exceeding beyond distal margin of article 3. Upper lip

somewhat incised. Mandibular body elongate and strongly tapering distally; incisor with teeth along medial side. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 apex of coxa excavate distally, wide apex and pointed posteroventral corner; basis concave anteromarginally and convex posteromarginally; carpus = $0.95(-1.07) \times$ propodus. Coxa 2 pointed distally and truncate and oblique anterodistally. Coxae 3 and 4 distally pointed. Posterodistal margin of coxa 4 strongly excavate. Pereopod 5 coxa posteriorly pointed; posterior margin of basis straight to slightly sinuous, posteroventral corner pointed. Pereopod 6 coxa posteriorly pointed; posterior margin of basis weakly sinuous, posteroventral angle pointed. Pereopod 7 coxa posteriorly pointed; posterior margin of basis sinuous, posteroventral angle pointed. Telson with narrow U-shaped excavation.

Size. Female 34-43 mm, male 26-48 mm.

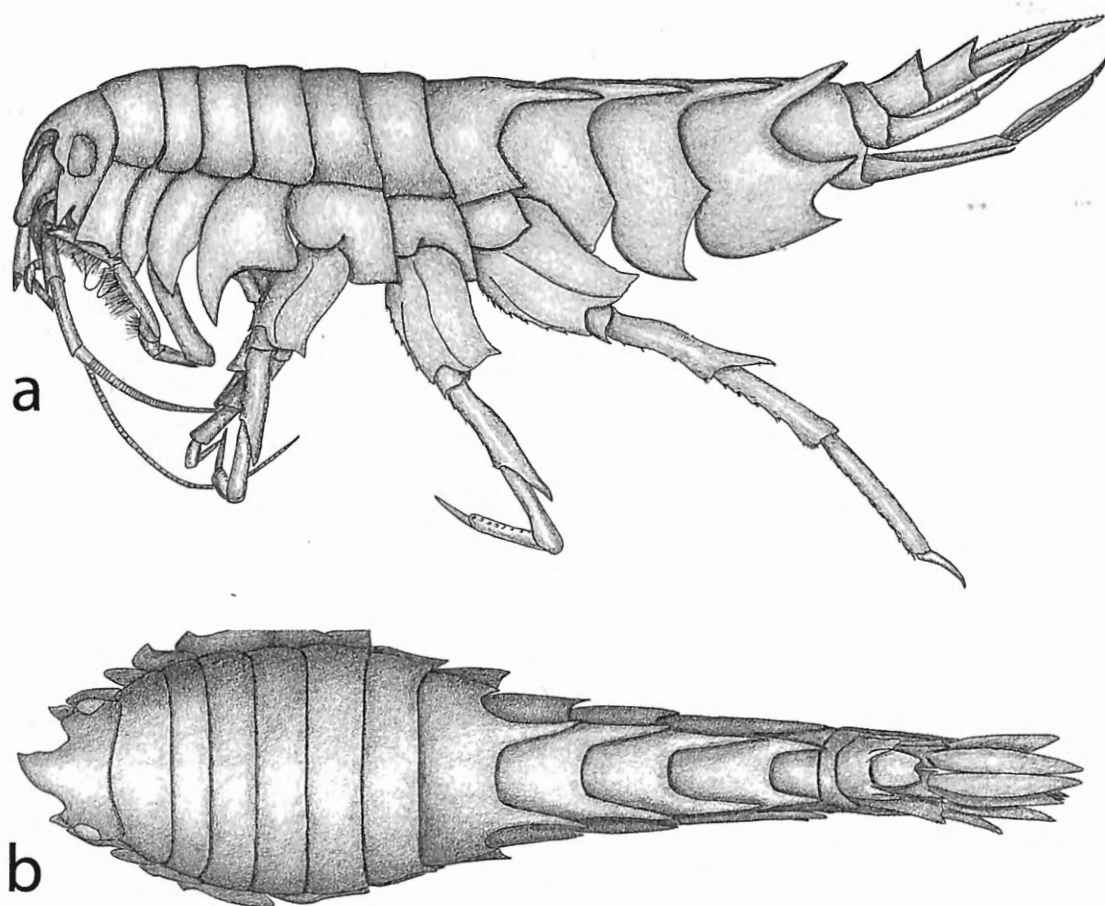


Fig. 61a-b. *Iphimediella cyclogena*. a) left lateral view; b) dorsal view.

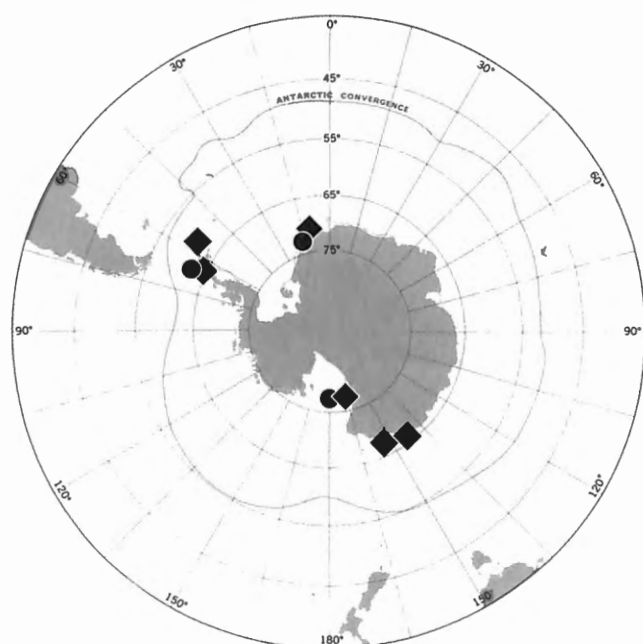
Remarks. From the *Iphimediella* species with 4 pairs of dorsal processes, *I. cyclogena* bears some resemblance with *I. microdentata* and *I. rigida*. The latter, however, has mid-dorsal keels, which are not present in *I. cyclogena* and the

space between the dorsal processes is slit-like narrowed anteriorly in *I. rigida*. *Iphimediella microdentata* has much shorter dorsal teeth and the subantennal notch is different: in *I. cyclogena* the anterior process of the notch is pointed, the posterior one is shorter and rounded, whereas in *I. microdentata* it is vice versa. *Iphimediella margueritei* has very different coxae 1-3.

Type locality. Ross Sea: McMurdo Sound.

Distribution. Adélie Coast; Oates Coast; Ross Sea; South Shetland Islands; Weddell Sea.

Depth range. 210-540 m.



Map 30. *Iphimediella cyclogena*: rhomb; *Iphimediella georgei*: circle.

Iphimediella dominici Coleman, 1996

(Fig. 62a-b, Map 31: rhomb)

References and synonymy. De Broyer *et al.* 2007: 102.

Diagnosis. Dorsal armature with paired teeth on pereonite 7 and pleonites 1-2; posteroventral corners of pereonites 1-4 not produced, somewhat produced on segments 5-7; mid-dorsal carina on pleonite 3 only, pointed and strongly projecting posteriorly; mid-dorsal carina on urosomite 1 absent. Posterolateral process on epimeral plates 1-2 rounded and weakly produced; that of pleonite 3 strongly produced and

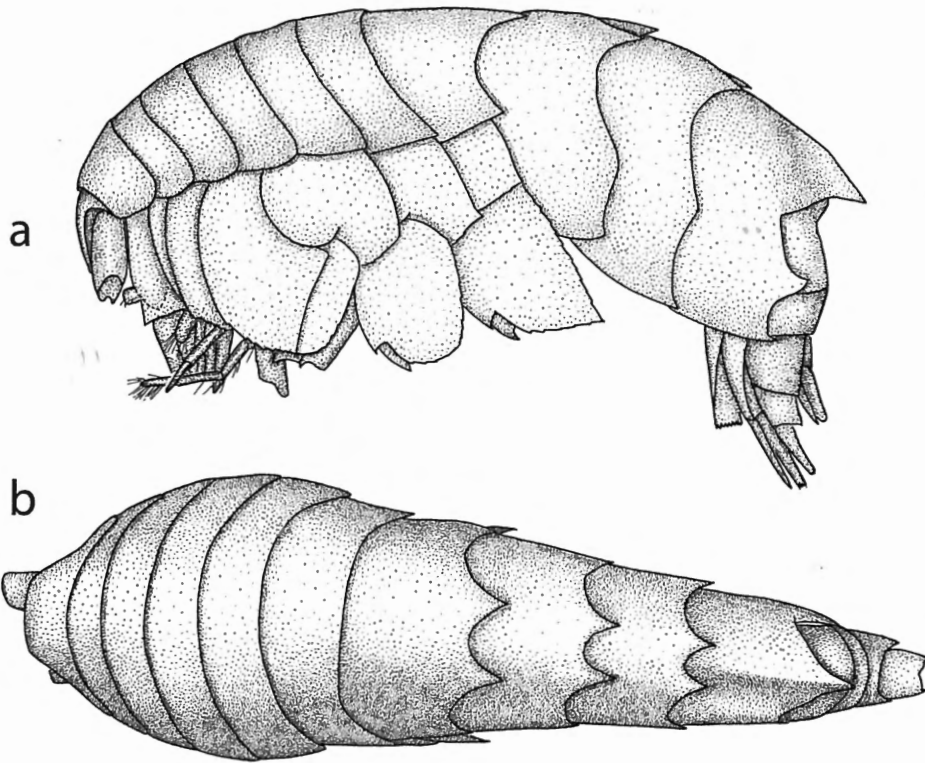


Fig. 62a-b. *Iphimediella dominici*. a) left lateral view; b) dorsal view.

pointed. Posteroventral corner on epimeral plate 1 angular to pointed; on plate 2 more pointed; on plate 3 acutely pointed and produced. Antenna 1 distal margin of first article with 3 short processes. Upper lip entire with weak apical depression. Mandibular body elongate and strongly tapering distally; incisor with apical teeth and along medial side. Lower lip with pointed apices. Maxilla 1 palp 2-articulate, subequal to outer plate. Second article of maxilliped palp medially produced guarding along inside of article 3. Gnathopod

1 apex of coxa rounded distally and weakly serrate; basis concave anteromarginally and convex posteromarginally; carpus length = $2.46 \times$ propodus. Coxa of gnathopod 2 rounded distally with weakly serrate margin. Coxa 3 distally subacute to rounded, with serrate margin. Coxa 4 pointed distally, posterodistal margin rather straight. Pereopod 5 coxa posteriorly rounded; posterior margin and posteroventral angle of basis rounded. Pereopod 6 coxa posteriorly pointed; posterior margin and posteroventral angle of basis rounded. Pereopod 7 coxa posteriorly pointed; posterior margin of basis rounded, posteroventral corner of basis pointed. Telson with shallow and wide v-shaped excavation.

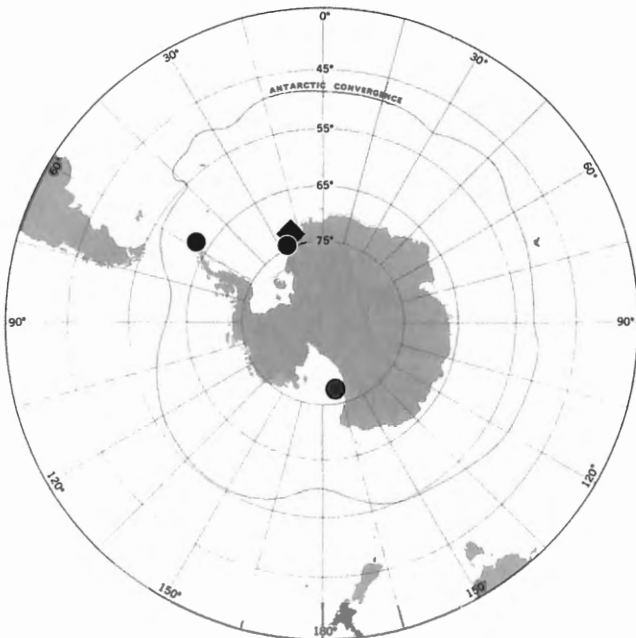
Size. Ovigerous female 7 mm.

Remarks. From all iphimediids *Iphimediella dominici* is closest related to *Iphimediella serrata*. For comparison see Table 5.

Type locality. Weddell Sea: $72^{\circ}53.10'S$ $19^{\circ}29.33'W$.

Distribution. Only known from type locality.

Depth range. 421-429 m.



Map 31. *Iphimediella dominici*: rhomb; *Iphimediella rigida*: circle.

Iphimediella georgei Watling & Holman, 1980

(Fig. 63a-b, Map 30: circle)

References and synonymy. De Broyer *et al.* 2007: 102.

Diagnosis. Dorsal armature with paired teeth on pereonite 7 and pleonites 1-2; posteroventral corners of pereonites 1-5 not produced, somewhat produced on pereonites 6-7; mid-dorsal carinae inconspicuously shallow on pleonite 2, drawn out

Table 5. Diagnostic differences between *Iphimediella dominici* and *I. serrata*.

	<i>Iphimediella dominici</i>	<i>Iphimediella serrata</i>
paired dorsal processes	pereonite 7, pleonites 1-2; quite short; not serrate medially	pereonites 6-7, pleonites 1-2 long; serrate medially
posteroventral angles of pereonites	unproduced on pereonites 1-4, weakly produced on pereonites 5-7, not serrate	laterally produced, pointed, serrate
posterior margins of epimera 1-2	weakly produced, rounded	strongly produced, pointed
1st peduncular antennal article	3 short apical processes	2 long processes
maxilliped palp article 2	medially produced	medially unproduced
coxa 1	subtriangular	subquadrate, apically truncate
basis 1	rather straight	strongly curved
carpus 2	shorter than propodus	longer than propodus
coxa 4	slender	wide
posterior margin of coxa 4	straight, non serrate	excavate, serrate
posterior margin of bases 5-6	convexly rounded, without processes	straight, 2 pointed processes

posteriorly on pleonite 3; mid-dorsal carina on urosomite 1 absent. Posterolateral process on epimeral plates 1-3 produced and pointed, especially produced on plate 3. Posteroventral corner on epimeral plates 1-3 pointed. Subantennal notch

narrow, both margins drawn out into small teeth, the posterior one slightly longer. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2, but almost

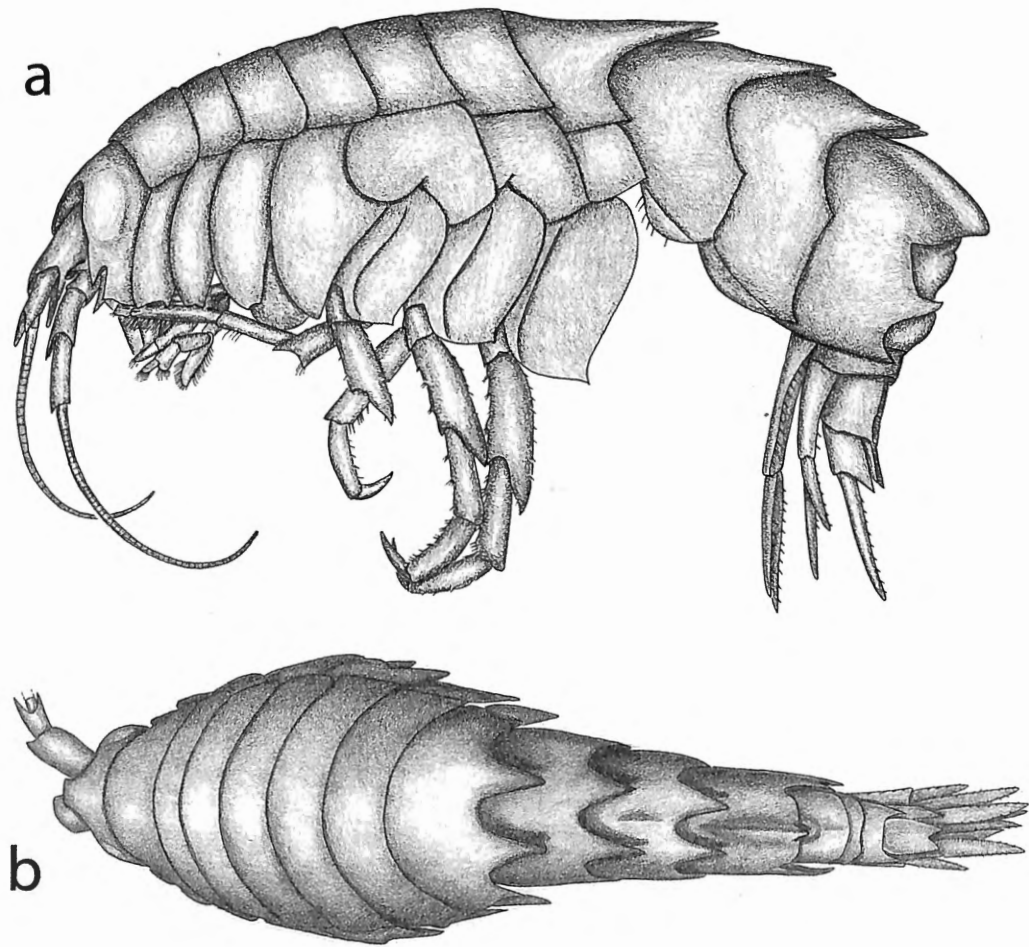


Fig. 63a-b. *Iphimediella georgei*. a) left lateral view; b) dorsal view.

reaching it; longest process of peduncular article 2 exceeding beyond distal margin of article 3. Upper lip weakly incised. Mandibular body elongate and strongly tapering distally; incisor toothed along medial side and also apically. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 apex of coxa excavate with rounded anteroventral and pointed posteroventral angle; basis concave anteromarginally and convex posteromarginally; carpus length subequal to propodus. Coxae 2-3 with truncate apex. Coxa 4 pointed distally and posterodistal margin weakly excavate. Pereopod 5 coxa posteriorly angular; posterior margin of basis rounded to slightly sinuous, posteroventral angle pointed. Pereopod 6 coxa posteriorly pointed; posterior margin of basis rounded to slightly sinuous, posteroventral angle pointed. Pereopod 7 coxa posteriorly pointed; posterior margin of basis rounded to weakly sinuous, posteroventral angle pointed. Telson almost truncate, with shallow and wide v-shaped excavation.

Size. Female 28 mm.

Remarks. See under *Iphimediella bransfieldi*.

Type locality. Bransfield Strait: *Islas Orcadas* 19, St. 7, 8: 62°18.9'S 55°13'W; Ross Sea: *Eltanin* 27, St. 1924, 75°11'S 176°13'W.

Distribution. Known from type localities and also found at 60°51'4"S 55°29'7"W.

Depth range. 348-732 m.

Iphimediella margueritei Chevreux, 1912a

(Fig. 64a-b, Map 32: rhomb)

References and synonymy. De Broyer *et al.* 2007: 102.

Diagnosis. Dorsal armature with paired teeth on pereonite 7 and pleonites 1-3; posteroventral angles of pereonites 1-4 rounded, somewhat produced posteriorly and with short acute tips on pereonites 5-7; mid-dorsal carinae on pleonites and urosomite 1 absent. Posterolateral process on epimeral plates 1-2 produced and pointed, that of pleonite 3 strongly produced and pointed. Posteroventral corner on epimeral plates 1-3 pointed. Subantennal notch narrow, both margins drawn out into teeth, the posterior tooth about twice as long as anterior. Antenna 1 distal margin of first article with 3 processes, longest process exceeding well beyond distal margin of article 3, even beyond first flagellar article; longest process of peduncular article 2 exceeding beyond distal margin of article 3. Upper lip entire and rounded. Mandibular body bulky; incisor toothed, sometimes dentation worn down;

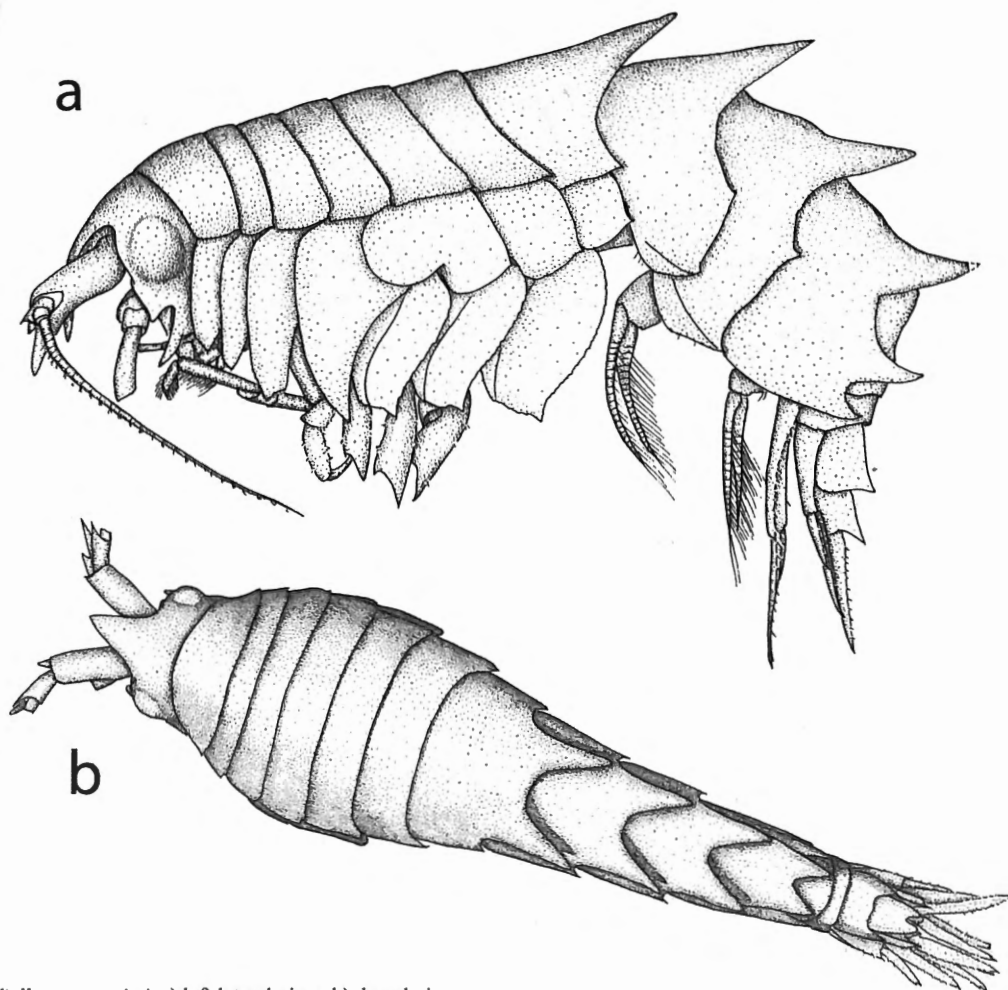
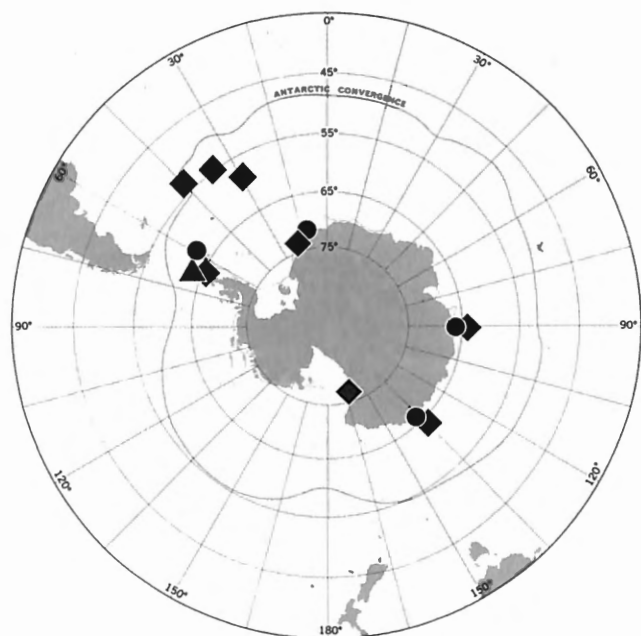


Fig. 64a-b. *Iphimediella margueritei*. a) left lateral view; b) dorsal view.



Map 32. *Iphimediella margueritei*: rhomb; *Iphimediella serrata*: circle; *Iphimediella paracuticoxa*: triangle.

incisor distally rounded, not cutting; teeth along medial side of mandibular body. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 apex of coxa excavate distally (bifid), or pointed and truncate and oblique anterodistally; basis concave anteromarginally and convex posteromarginally; carpus = $1.23(-1.34) \times$ propodus. Coxa 2 pointed distally, truncate and oblique anterodistally, or excavate distally (narrow and bifid). Coxa 3 pointed distally and truncate and oblique posterodistally, or excavate distally (and bifid). Coxa 4 pointed distally; posterodistal margin excavate. Pereopod 5 coxa posteriorly rounded, or pointed; posterior margin of basis weakly sinuous, posteroventral corner pointed. Pereopod 6 coxa posteriorly pointed; posterior margin of basis weakly sinuous, posteroventral corner pointed. Pereopod 7 coxa posteriorly pointed; posterior margin of basis rounded to weakly sinuous, posteroventral corner pointed. Telson with narrow U-shaped excavation.

Size. Female 17-25 mm, male 17 mm.

Remarks. This species has some similarity to *Gnathiphimedia watlingi*. Compare with the remarks there. Within the genus *Iphimediella* *ruffoi* has some similarity, however, it does not have dorsal teeth on pleonite 3 as *I. margueritei*.

Comparing extensive material there seem to be some variability in the shape of the coxae. It might also be that the differences in these characters indicate the presence of another, undescribed species.

Type locality. Marguerite Bay.

Distribution. Adélie Coast; Bransfield Strait; Marguerite Bay; Ross Sea; South Georgia; South Sandwich Islands; South Shetland Islands; Weddell Sea.

Depth range. 10-732 m.

Iphimediella microdentata (Schellenberg, 1926a)

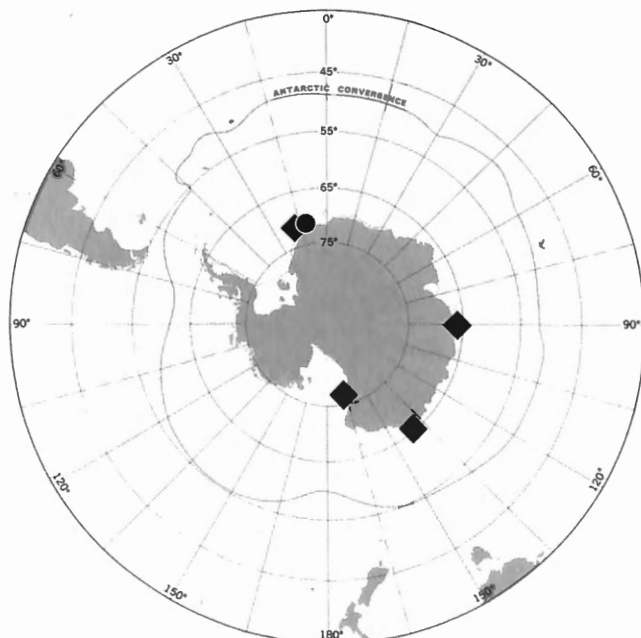
(Fig. 65a-b, Map 33: rhomb)

References and synonymy. De Broyer *et al.* 2007: 103.

Diagnosis. Paired rather short teeth on pereonite 7 and pleonites 1-3. Posteroventral corners of pereonites 1-4 rounded and not produced, short and pointed on pereonites 5-7; mid-dorsal carinae on pleonites and on urosomite 1 absent. Posterolateral process on epimeral plates 1 and 2 rounded and weakly produced; that of plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded; that of plate 2 and 3 pointed. Subantennal notch narrow, anterior distal margin rounded, posterior margin drawn out into pointed tooth. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; longest process of peduncular article 2 exceeding beyond distal margin of article 3. Upper lip entire. Mandibular body elongate and strongly tapering distally; incisor with teeth along medial side and apically. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 apex of coxa excavate with rounded anteroventral and pointed, produced posteroventral corner; basis concave anteromarginally and convex posteromarginally; carpus length = $1.25 \times$ propodus. Coxae 2-4 pointed distally. Posterodistal margin of coxa 4 excavate. Pereopod 5 coxa posteriorly pointed; posterior margin of basis straight, posteroventral angle pointed. Pereopod 6 and 7 coxae posteriorly pointed; posterior margin of basis weakly sinuous; posteroventral corner of basis pointed. Telson with wide and shallow rounded excavation.

Size. Female 14-16 mm, male 13 mm.

Remarks. This species bears some resemblance to *I. cyclogena*. For differences compare with remarks of



Map 33. *Iphimediella microdentata*: rhomb; *Iphimediella ruffoi*: circle.

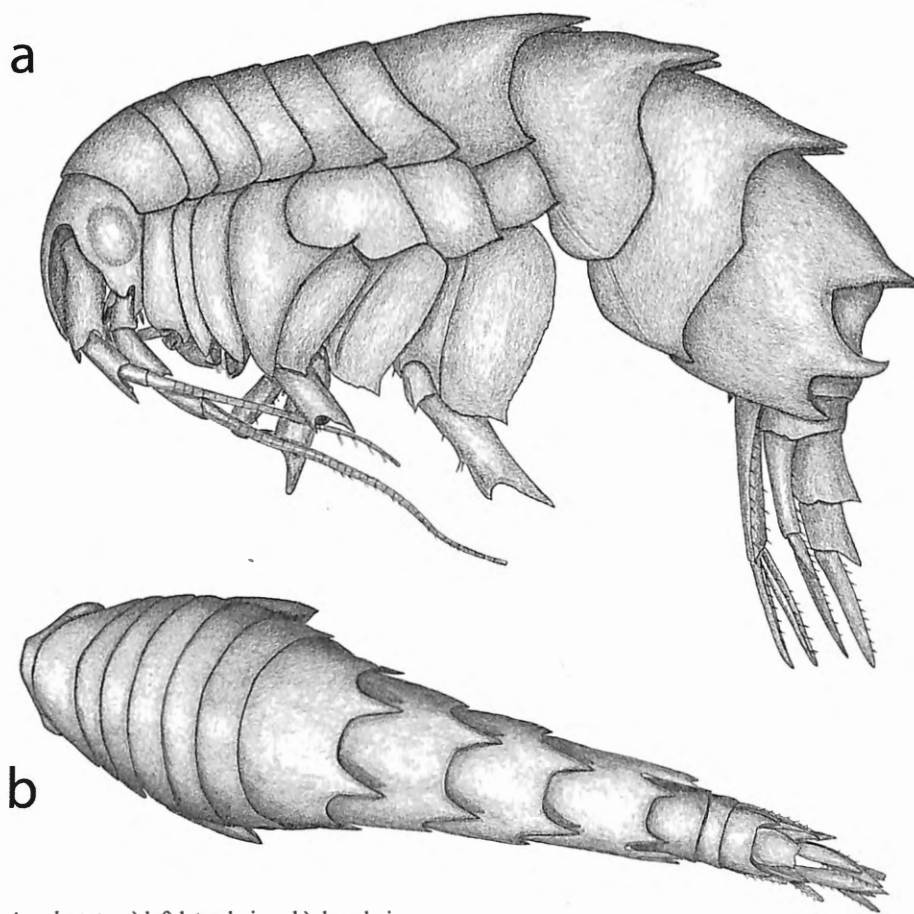


Fig. 65a-b. *Iphimediella microdentata*. a) left lateral view; b) dorsal view.

this species. *Gnathiphimedia mandibularis* has a similar morphology of the shape of the apices of coxae 1-4, however, its paired dorsal teeth are longer, the incisors of the mandibles are non cutting and the longest process of article 1 of the antenna 1 peduncle surpasses the first flagellar article (vs. only reaching the apical margin of the second article).

Type locality. Davis Sea: Gauss Station.

Distribution. Adélie Coast; Davis Sea; Ross Sea; Weddell Sea.

Depth range. 216-720.

Iphimediella paracuticoxa Andres, 1988b

(Fig. 66a-h, Map 32: triangle)

References and synonymy. De Broyer *et al.* 2007: 103.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-3; space between paired dorsal processes strongly narrowed v-shaped at the segmental border; posteroventral corners of pereonites strongly produced and pointed; weak mid-dorsal carinae on pleonite 1-3. Posterolateral process on epimeral plates 1-3 very strongly produced and pointed; that of epimeral plate 3 not longer compared to pleonites 1-2. Posteroventral angle of epimeral plates 1-3 pointed. Subantennal notch narrow, not deep, anterior and posterior margin produced into pointed

teeth, posterior tooth somewhat longer. Distal margin of first article of antenna 1 with 2 processes, one lateral tooth and one longer ventral tooth; longer process of peduncular article 1 not exceeding beyond distal margin of article 2; first peduncular article only scarcely longer than rostrum. Upper lip entire. Mandibular body elongate and strongly tapering distally; incisor along the medial side of the mandibular body, not toothed, only inconspicuously serrate. Lower lip with mediodistal notches. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp very weakly medially produced guarding along inside of article 3. Gnathopod 1 apex of coxa truncate and oblique anterodistally; basis concave anteromarginally and convex posteromarginally; carpus = 1.2 x propodus length. Coxae 2-4 pointed distally, coxa 2 rather subacute. Posterodistal margin of coxa 4 excavate. Pereopod 5-7 coxae posteriorly pointed, and strongly drawn out; posterior margin of bases excavate and with proximo-posteromarginal long tooth; posteroventral corner of bases pointed. Bases 5-7 wider successively. Telson with shallow and wide v-shaped excavation.

Size. Only juveniles are known: 4.5-6.8 mm.

Remarks. The species is close to *Iphimediella acuticoxa*. It can be distinguished from this species by the following: coxa 1 not rounded apically, but angular; coxa 2 is subacute; first peduncular article with 1 dorsal and 1 longer ventral tooth apically; outer plate with 11 spiniform setae.

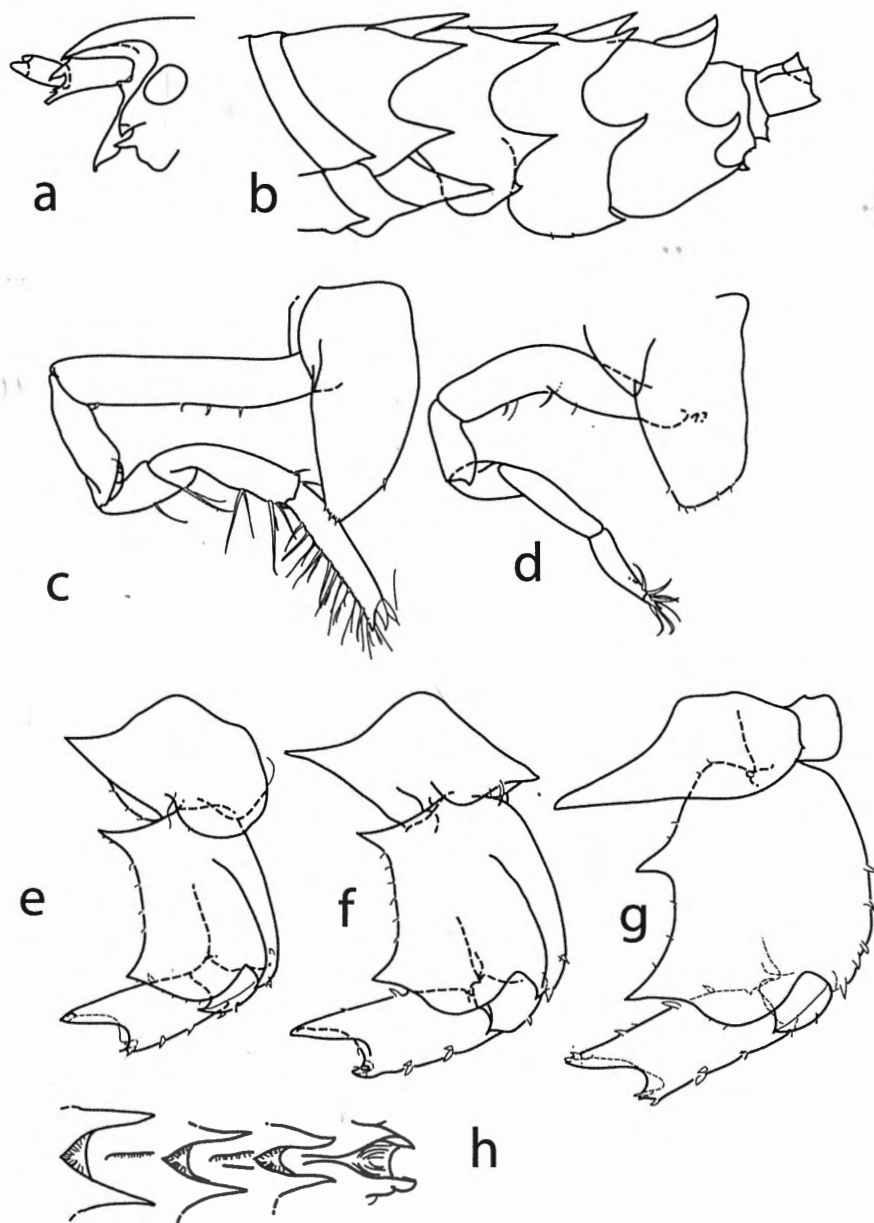


Fig. 66a-h. *Iphimediella paracuticoxa*, redrawn after Andres, 1988a. a) head; b) posterior part of the body; c) gnathopod 2; d) gnathopod 1; e) pereopod 5; f) pereopod 6; g) pereopod 7; h) paired dorsal processes of pereonite 7 and pleonites 1-3.

Type locality. Bransfield Strait: *Polarstern*, St. 207, 62°59'S 57°05'W.

Distribution. Only known from type locality.

Depth range. 68 m.

Iphimediella rigida K.H. Barnard, 1930

(Fig. 67a-b, Colour plate 3d, Map 31: circle)

References and synonymy. De Broyer *et al.* 2007: 103.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-3; space between paired dorsal processes strongly narrowed to a v-shaped slit at the segmental border; posteroventral angles of pereonites not produced on pereonites 1-4, somewhat produced on segments 5-7. Mid-dorsal carinae on pleonites

1-3 and on urosomite 1 present. Posterolateral process on epimeral plates 1-2 slightly produced and pointed, on epimeral plate 3 strongly produced and pointed. Posteroventral corner on epimeral plates 1-3 somewhat pointed. Subantennal notch narrow, both margins drawn out into pointed tooth, posterior tooth somewhat longer than anterior one. Antenna 1 distal margin of first article with 2 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; longest process of peduncular article 2 not exceeding beyond distal margin of article 3. Upper lip incised. Mandibular body elongate and strongly tapering distally; incisor toothed along medial side and with apical teeth. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 apex of coxa excavate with rounded anteroventral and pointed posteroventral angle;

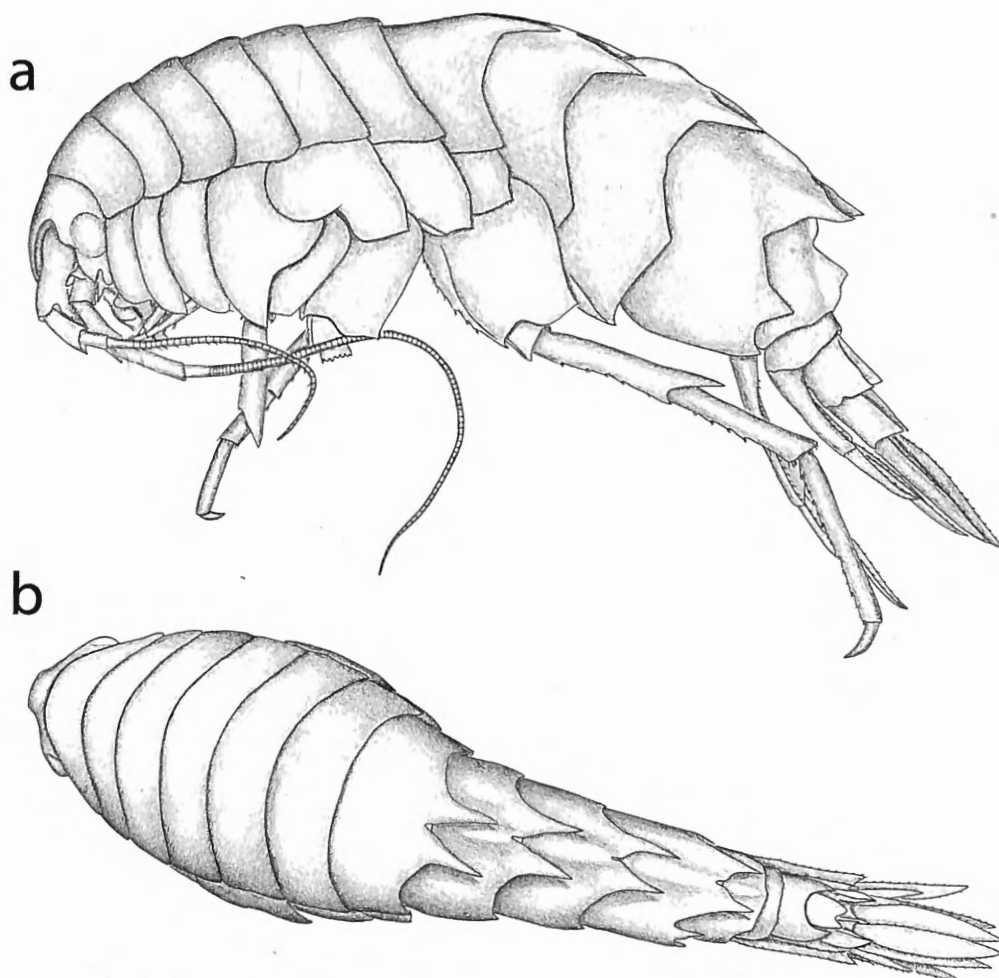


Fig. 67a-b. *Iphimediella rigida*. a) left lateral view; b) dorsal view.

carpus = 0.92 x propodus length. Coxa 2 excavate with rounded anteroventral and pointed posteroventral corner. Coxa 3 excavate with rounded anteroventral and pointed posteroventral corner. Coxa 4 pointed distally, posterodistal margin excavate. Pereopod 5-7 coxae posteriorly pointed; posterior margin of bases weakly sinuous, posteroventral corner angular, that of pereopods 6-7 pointed. Pereopod 6 coxa posteriorly pointed; posterior margin of basis weakly sinuous, posteroventral corner pointed. Telson with wide and shallow rounded excavation.

Size. Male 32 mm.

Remarks. This species can be easily distinguished from all other *Iphimediella* species by the 4 pairs of dorsal teeth, the pleon keels and the v-shaped excavation between the dorsal processes, narrowed to a slit at the segmental borders.

Type locality. Ross Sea: McMurdo Sound, Terra Nova, St. 339.

Distribution. Ross Sea; South Shetland Islands; Weddell Sea.

Depth range. 256-625 m.

Iphimediella ruffoi Coleman, 1996

(Fig. 68a-b, Map 33: circle)

References and synonymy. De Broyer *et al.* 2007: 104.

Diagnosis. Paired dorsal teeth on pereonite 7 and pleonites 1-2; posteroventral angles of pereonites rounded and not produced on pereonites 1-3, somewhat produced on pereonites 4-7. Mid-dorsal carinae on pleonites and urosomite 1 wanting. Posterolateral process on epimeral plates 1-2 produced and pointed, that of epimeral plate 3 strongly produced and pointed. Posteroventral angle on epimeral plate 1 rounded, that of epimera 2-3 pointed. Subantennal notch narrow, both margins acutely drawn out, posterior process longer than anterior. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 exceeding well beyond distal margin of article 3; longest process of peduncular article 2 not exceeding beyond distal margin of article 3. Upper lip entire with weak apical depression. Mandibular body elongate and strongly tapering distally; incisor toothed along medial side. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article

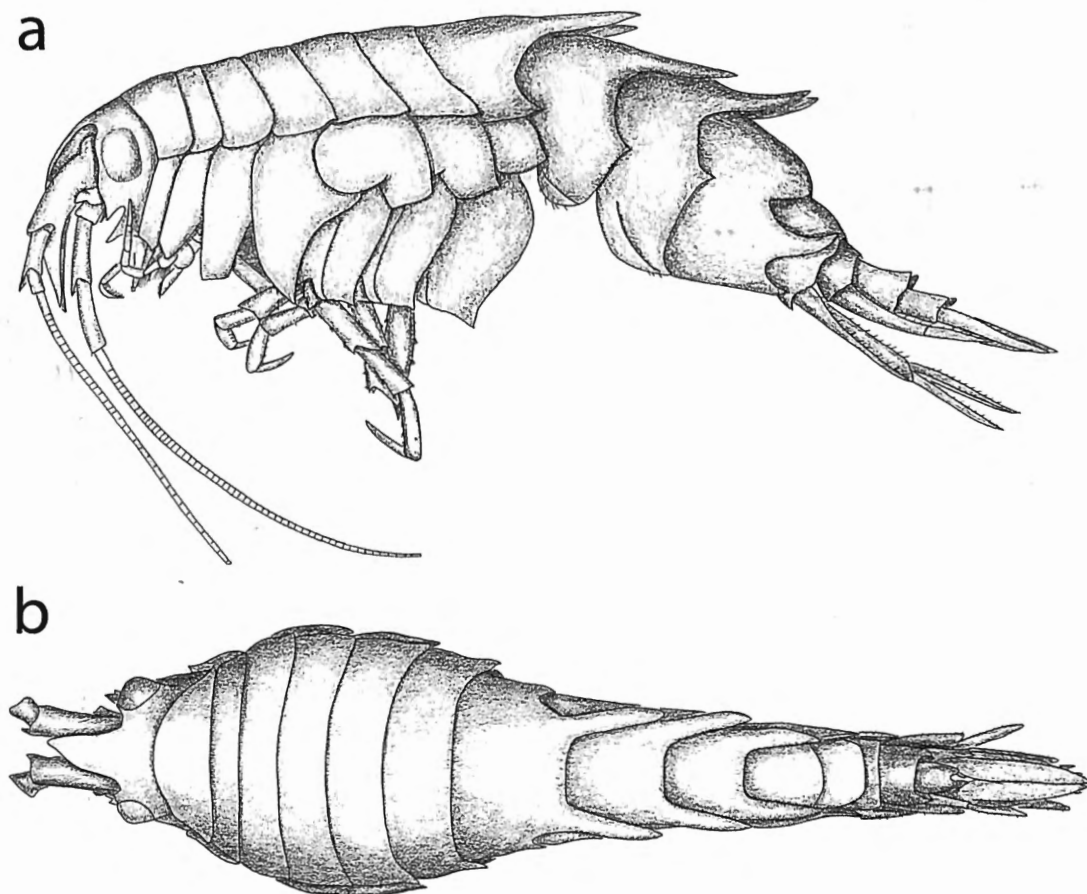


Fig. 68a-b. *Iphimediella ruffoi*. a) left lateral view; b) dorsal view.

3. Gnathopod 1 apex of coxa truncate, oblique anterodistally and slightly excavate distally; basis concave anteromarginally and convex posteromarginally; carpus = 1.29 x propodus length. Coxa 2 truncate and oblique anterodistally. Coxa 3 with truncate apex. Coxa 4 pointed distally and posterodistal margin excavate. Pereopod 5-7 coxae posteriorly pointed; posterior margin of bases weakly sinuous, posteroventral corner pointed. Telson with narrow U-shaped excavation.

Size. Female 26 mm.

Remarks. Similar to *I. margueritei*, however, with only 6 dorsal teeth (vs. 8).

Type locality. Weddell Sea: eastern shelf: *Polarstern* 72°31.64'S 17°34.97'W.

Distribution. Only known from type locality.

Depth range. 242-264 m.

Iphimediella serrata (Schellenberg, 1926a)

(Fig. 69a-b; Map 32: circle)

References and synonymy. De Broyer *et al.* 2007: 104.

Diagnosis. Dorsal armature with paired serrate teeth on pereonites 6-7 and pleonites 1-2; space between paired dorsal processes wide on pereonites and narrower on pleonites,

U-shaped. Mid-dorsal carina on pleonite 3 only, mid-dorsal carina on urosomite 1 absent. Posteroventral corners of pereonites strongly produced and pointed. Posterolateral process on epimeral plates 1-3 strongly produced and pointed, that of epimeral plate 3 serrate on ventral margin and longest. Posteroventral corner on epimeral plates 1-3 pointed; increasing in length successively. Subantennal notch absent, but short tooth. Antenna 1 distal margin of first article with 2 processes, and 2 additional small teeth; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; distal process of peduncular article 2 not exceeding beyond distal margin of article 3. Upper lip incised. Mandibular body elongate and strongly tapering distally; incisor toothed along medial side. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, subequal in length to outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 apex of coxa weakly excavate with rounded anteroventral and pointed posteroventral corner, serrate ventromarginally; basis strongly concave anteromarginally and convex posteromarginally; carpus = 2.62 x propodus length. Coxa 2 truncate and oblique posterodistally, serrate along ventral margin. Coxa 3 truncate and oblique anterodistally, pointed distally, serrate anteromarginally. Coxa 4 pointed distally, posterodistal margin excavate and serrate. Pereopod 5-6 coxae posteriorly pointed; posterior margin of bases excavate,

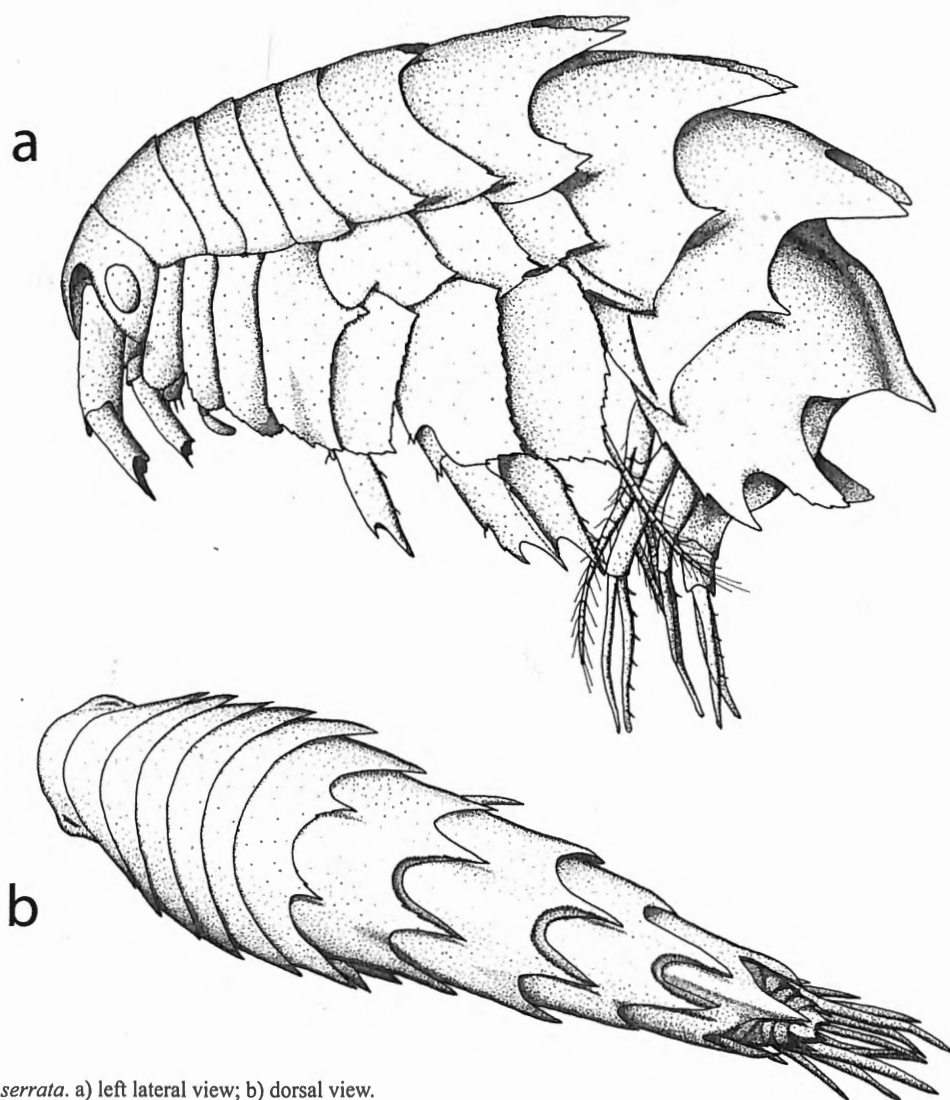


Fig. 69a-b. *Iphimediella serrata*. a) left lateral view; b) dorsal view.

posteroventral corner pointed, those of pereopods 6-7 drawn out and pointed. Telson with shallow and wide v-shaped excavation and additional notches on both apices.

Size. Female 8.5-10 mm, ? male 8 mm.

Remarks. This species is very similar to *I. dominici*. See Table 5 in the remarks on *I. dominici* for comparison.

Type locality. Davis Sea: Gauss Station.

Distribution. Adélie Coast; Bransfield Strait; Davis Sea; South Shetland Islands; Weddell Sea.

Depth range. 54-549 m.

Labriphimedia K.H. Barnard, 1931a

Type-species. *Labriphimedia vespuccii* K.H. Barnard, 1931a

Diagnosis (emended after Barnard & Karaman, 1991). Dorsal body side covered with teeth or processes. Antenna 1 peduncular articles 1-2 subequal. Mouthparts projecting conically. Upper lip incised or entire, it and epistome very

broad. Mandibular incisor broad, hollowed out in form of a spoon; setal row absent; molar obsolescent, simple. Lower lip inner lobes absent. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate narrower but as long as outer plate, latter elongate; palp article 2 narrow and apicomediaally unproduced. Coxae ordinary; coxae 1-4 progressively longer, coxa 4 long, polycuspidate. Gnathopods alike, gnathopod 2 longer than 1, carpus and propodus elongate; narrow, both gnathopods chelate. Telson incised or cleft.

Labriphimedia pulchridentata (Stebbing, 1883)

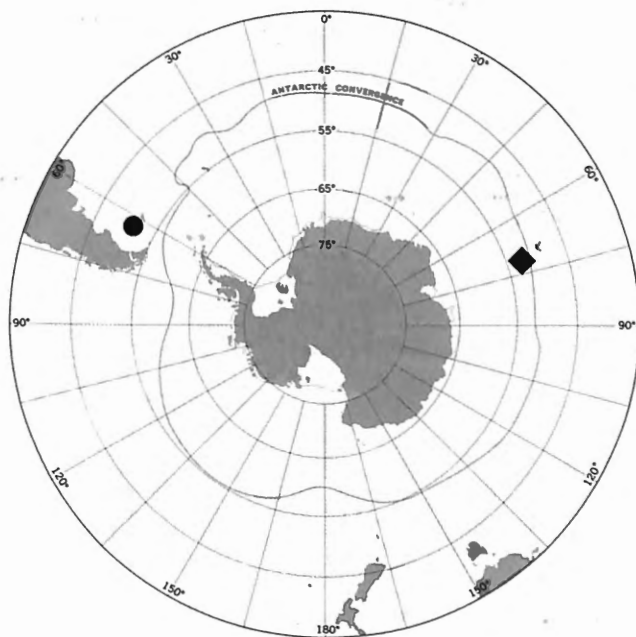
(Fig. 70a-b, Map 34: rhomb)

References and synonymy. De Broyer *et al.* 2007: 104.

Diagnosis. Dorsal armature with paired teeth on pereonites 6-7 and pleonites 1-3; space between paired dorsal processes narrow, U-shaped; with an additional tooth from pereonite 6 to pleonite 2 on both sides of the dorsal pair of processes. Dorsal carinae on pleonites 1-3 (on Stebbing's, 1888 drawing

there are mid-dorsal teeth on pereonites 6-7 too), consisting of a pointed posterior directed tooth, with a small additional tooth anteriorly. Posteroventral corners of pereonites strongly produced and pointed, especially long on pereonites 6-7. Posterolateral process on epimeral plates 1-3 strongly produced and pointed. Posteroventral angle on epimeral plates 1-3 progressively longer. Eyes, circular. Subantennal notch wide, both margin drawn out into pointed process, posterior process much longer. Antenna 1 first article with one proximal tooth and distal margin with 2 processes; longest process of peduncular article 1 exceeding beyond distal margin of article 2; longest process of peduncular article 2 exceeding beyond distal margin of article 3. Upper lip entire. Mandibular body elongate and strongly tapering distally; incisor not toothed, medially excavate, spoonshaped. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 apex of coxa bifid and strongly excavate distally; basis concave anteromarginally and convex posteromarginally; carpus = 1.35 x propodus length. Coxae 2-3 bifid and deeply excavate distally. Coxa 4 narrow, pointed distally, posterodistal margin excavate. Pereopod coxae 5-7 posteriorly bicuspidate; posterior margin of bases multicuspitate. Telson with narrow U-shaped excavation and pointed lobes.

Remarks. This species is unique in the iphmediids. There



Map 34. *Labriphimedia pulchridentata*: rhomb; *Labriphimedia vespuccii*: circle.

are no other species with this specific dorsal armature, bicuspidate coxae 5-7 and such impressive teeth on bases 5-7.

Type locality. Heard Island: 52°59'S 73°33'E.

Distribution. Only known from type locality.

Depth range. 136 m.

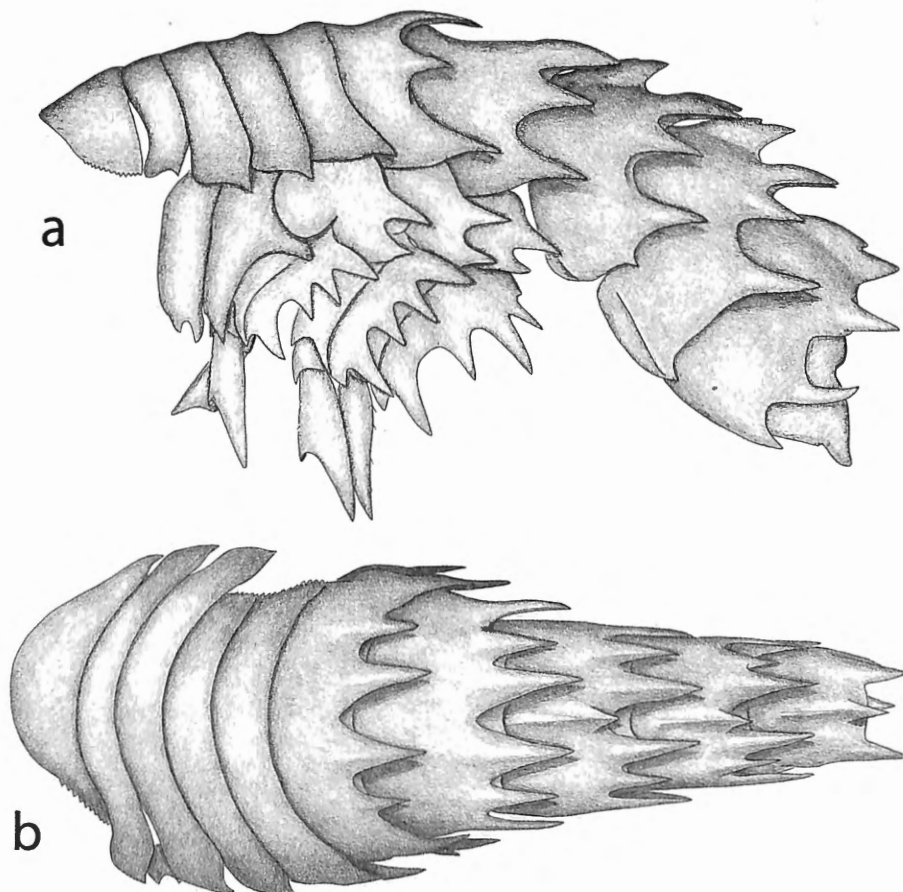


Fig. 70a-b. *Labriphimedia pulchridentata*. a) left lateral view of damaged type specimen; b) dorsal view.

***Labriphimedia vespuccii* K.H. Barnard, 1931a**

(Fig. 71a-b, Map 34: circle)

References and synonymy. De Broyer *et al.* 2007: 104.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-3; space between paired dorsal processes strongly narrowed at the segmental edge and v-shaped; posteroventral angles of pereonites rounded and not produced on pereonites 1-4, somewhat produced on pereonites 6-7. Mid-dorsal carinae on pleonites 2-3, that on pleonite 2 inconspicuous, but on pleonite 3 strongly projecting with a pointed tip posteriorly. Mid-dorsal carina on urosomite 1 present with an notch-like excavation, thus bidentate, posterior part ending in a pointed tooth. Posterolateral process on epimeral plates 1-3 progressively produced and pointed. Posteroventral corner on epimeral plate 1 rounded; plates 2-3 pointed, margin between posterolateral and posteroventral process of epimeral plate 3 serrate. Urosomite 1 with mid-dorsal keel that is subdivided by notch. Subantennal notch narrow, posterior margin ending in a rounded process, anterior lobe angularly rounded. Antenna 1 distal margin of first article with 3 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; longest process of peduncular

article 2 not exceeding beyond distal margin of article 3. Upper lip entire. Mandibular body elongate and strongly tapering distally; incisor not toothed, medially excavate, spoonshaped. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Apex of coxa 1 rounded distally. Coxa 2 rounded distally, that of pereopod 3 with truncate apex. Pereopod 4 coxa with rounded angular apex, posterodistal margin straight to weakly excavate. Pereopod 5 coxa posteriorly angularly rounded; posterior margin of basis excavate with pointed proximo-posteromarginal tooth and serrate posterior margin, posteroventral corner pointed. Pereopod 6 coxa posteriorly pointed; posterior margin of basis similar to that of pereopod 7, but longer. Pereopod 7 coxa posteriorly angular to pointed; posterior margin of basis sinuous; posteroventral corner pointed. Telson with narrow U-shaped excavation with pointed lobes.

Size. Ovigerous female 16 mm.

Remarks. The combination of keeled pleonites 2-3, notched keel on urosomite 1 and serrate posterior margin of pleonite 3 is unique in the family.

Type locality. Falkland Islands, Eddystone Rock.

Distribution. Only known from type locality.

Depth range. 105-115 m.

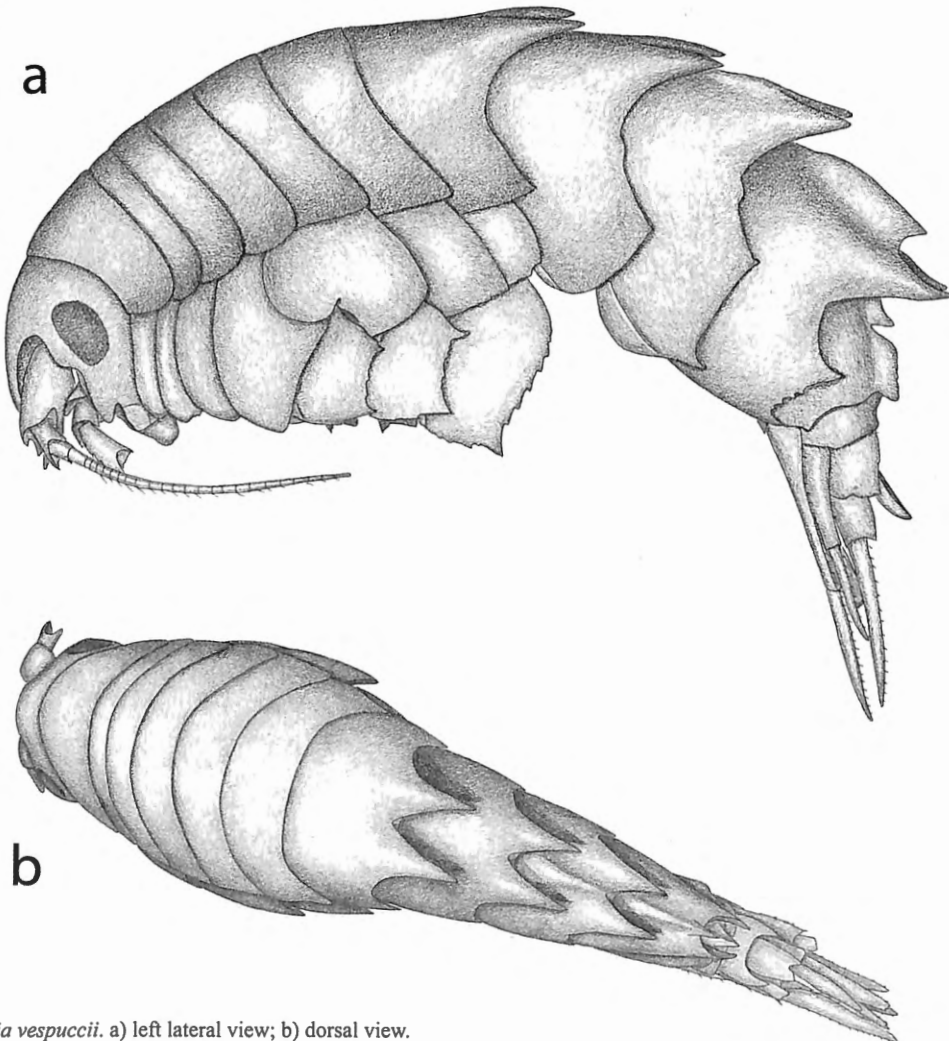


Fig. 71a-b. *Labriphimedia vespuccii*. a) left lateral view; b) dorsal view.

Maxilliphimedia* K.H. Barnard, 1930*Type-species.** *Maxilliphimedia longipes* Walker, 1906c

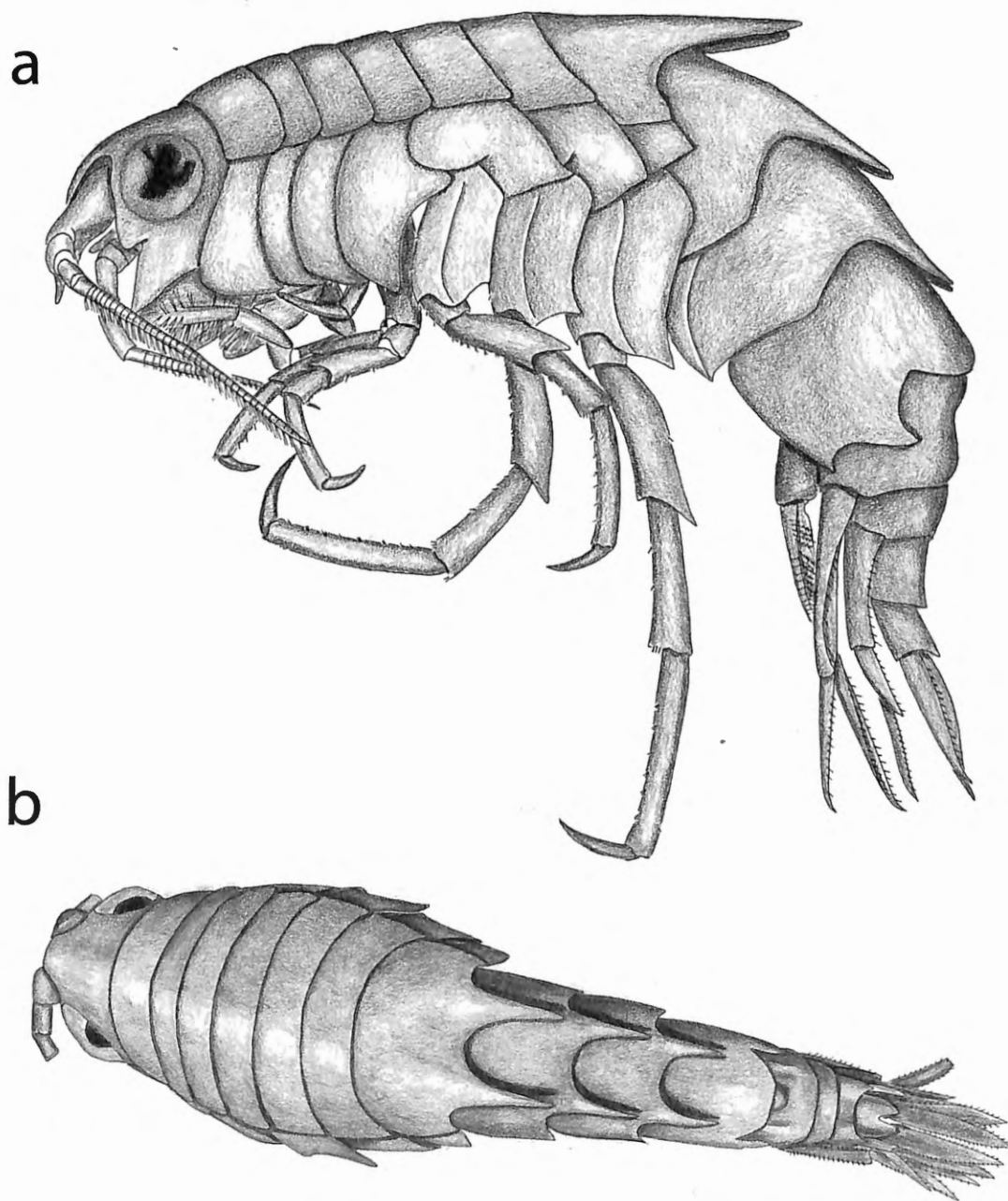
Diagnosis (emended after Watling & Holman, 1981). Epistome moderately broadened. Upper lip broad, asymmetrically incised. Mandibular incisor broad but flattened, cutting edge multidentate; orientated to cut in frontal plane. Lower lip without inner lobes. Maxilla 1 palp 2-articulate, article 2 greatly expanded. Maxilla 2 inner and outer plates expanded. Maxilliped palp 3 articulate, article 2 expanded but not produced along article 3. Gnathopods chelate.

***Maxilliphimedia longipes* Walker, 1906c**

(Fig. 72a-b, Colour plate 3c, Map 35: rhomb)

References and synonymy. De Broyer *et al.* 2007: 105.

Diagnosis. Paired dorsal teeth on pereonite 7 and pleonites 1-2. Posteroventral corners of pereonites 1-4 rounded and not produced, somewhat produced on pereonites 5-7. Mid-dorsal carinae on pereon, pleon and urosomite absent. Posterolateral process on epimeral plates 1-2 rounded and weakly produced; plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 rounded; that of plates 2-3 pointed. Subantennal notch narrow, not deep, posterior margin drawn

Fig. 72a-b. *Maxilliphimedia longipes*. a) left lateral view; b) dorsal view.

out into long, wide, pointed tooth. Antenna 1 distal margin of first article with 1 processes, slightly exceeding beyond distal margin of article 2; peduncular article 2 apically straight. Upper lip incised. Mandibular body bulky, medially excavate; incisor with apical teeth, multidentate. Lower lip with rounded unnotched lobes, but weak apical depression. Maxilla 1 palp 2-articulate, much longer than outer plate; second palp article palp strongly elongate and expanded to ovale shape. Second article of maxilliped palp weakly medially produced guarding along inside of article 3. Gnathopod 1 apex of coxa truncate and expanded apically; basis concave anteromarginally and convex posteromarginally; carpus = $0.88 \times$ propodus length. Coxae 2-3 with truncate to rounded distal apex. Coxa 4 pointed distally, posterodistal margin excavate. Pereopod 5 coxa posteriorly produced and pointed; posterior margin of basis weakly sinuous; posteroventral corner pointed. Pereopod 6-7 coxae posteriorly subacutely pointed; posterior margin of basis weakly sinuous, posteroventral corner pointed. Pereopod 7 coxa posteriorly pointed; posterior margin of basis sinuous, posteroventral corner pointed. Telson with narrow U-shaped excavation.

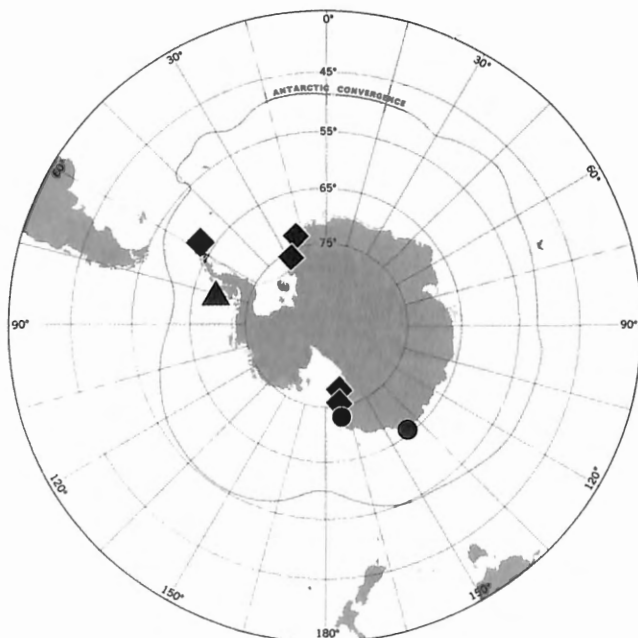
Size. Female 43 mm, male 32-35 mm.

Remarks. This species can be easily recognized from lateral view by the scarcely projecting not cone-like mouthparts that are covered by the large maxilliped plates and the expanded second article of the maxilla 1 palp, by the large anteroventral head process and the rounded coxa 1.

Type locality. Ross Sea, Coulman Island.

Distribution. Ross Sea; South Shetland Islands; Weddell Sea.

Depth range. 60-769 m.



Map 35. *Maxillipimedia longipes*: rhomb; *Nodotergum bicarinatum*: circle; *Paranchiphimedia monodi*: triangle.

Nodotergum Bellan-Santini, 1972a

Type-species. *Nodotergum bicarinatum* Ballan-Santini, 1972a

Diagnosis (modified after Barnard & Karaman, 1991). Dorsal body side covered with teeth or processes. Antenna 1 peduncular article 2 shorter than 1. Accessory flagellum 1-articulate, obsolescent. Mouthparts projecting. Upper lip incised, not very broad. Mandibular incisor ordinary, toothed; setal row absent, molar obsolescent. Lower lip inner lobes absent, outer lobes relatively broad, entire. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate narrower but as long as outer plate, latter elongate; palp article 2 narrow and apicomedia unproduced; palp article 4 absent. Coxae ordinary; coxae 1-4 progressively longer; coxa 4 long, polycuspidate. Gnathopods diverse, gnathopod 2 longer than 2, articles 5-6 elongate, narrow; gnathopod 1 simple, gnathopod 2 chelate. Telson entire, but apically trifid.

Nodotergum bicarinatum Bellan-Santini, 1972a

(Fig. 73, Map 35: circle)

References and synonymy. De Broyer *et al.* 2007: 105.

Diagnosis. Paired dorsal teeth on all pereon and pleon segments. Posteroventral angles of pereonites strongly produced and pointed. Mid-dorsal carinae on pleonites 1-3, two long acute processes on urosomite 1 present. Posterolateral process on epimeral plates 1-3 strongly produced and pointed. Posteroventral corner on epimeral plates 1-3 pointed. Shape of subantennal notch unknown. Antenna 1 distal margins of peduncular articles 1-3 without processes, straight. Upper lip notched. Mandibular body elongate and strongly tapering distally; incisor with apical teeth. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, scarcely longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 simple; apex of coxa pointed distally; basis concave anteromarginally and convex posteromarginally; carpus = $0.78 \times$ propodus length. Coxa 2 truncate and oblique posterodistally. Coxa 3 rounded distally to pointed distally. Coxa 4 subacutely pointed distally; posterodistal margin deeply excavate. Pereopod 5 coxa posteriorly pointed; posterior margin of basis straight, posteroventral corner angular. Pereopod 6 coxa posteriorly rounded; posterior margin of basis straight, with shallow and narrow excavation posterodistally, posteroventral corner angular to rounded. Pereopod 7 coxa posteriorly pointed; margin of basis excavate posterodistally, posteroventral corner pointed. Telson entire, with small denticles posteromarginally.

Size. 7 mm.

Remarks. This species has paired processes from pereonite 1 on, which is unique within the Iphimediidae. Another unusual trait is the simple gnathopod 1 (vs. chelate condition in all

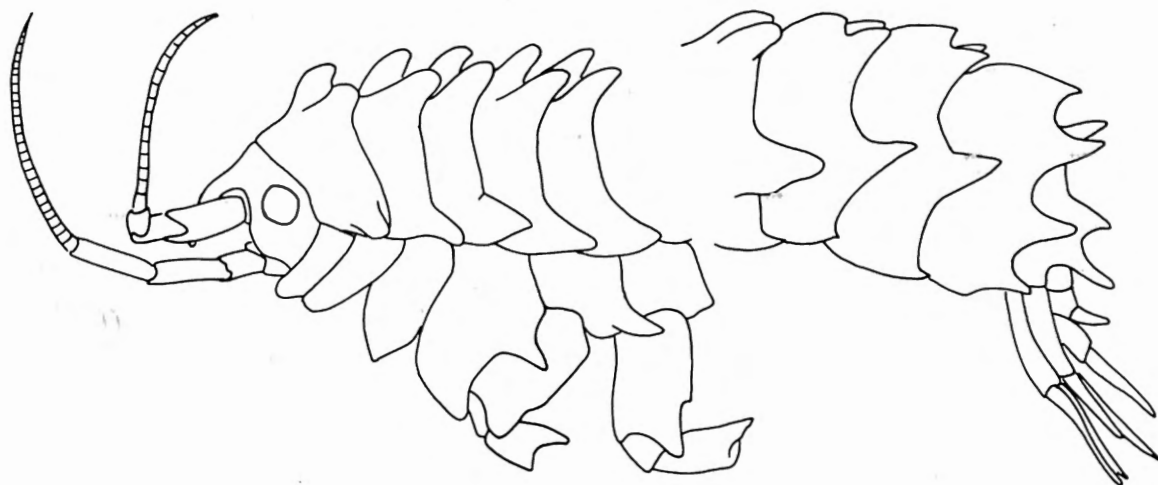


Fig. 73. *Nodotergum bicarinatum*, redrawn after Bellan-Santini, 1972a. Left lateral view of a damaged specimen.

species of the family).

Type locality. Adélie Coast, Cap Géodésie, 66°40'S 139°51'E.

Distribution. Only known from type locality.

Depth range. 115-135m.

Paranchiphimedia Ruffo, 1949

Type-species. *Paranchiphimedia monodi* Ruffo, 1949

Diagnosis (after Barnard & Karaman, 1991). Dorsal body side with paired teeth. Antenna 1 peduncular article 1-2 subequal. Accessory flagellum obsolete. Upper lip incised, not very broad. Mandibular incisor ordinary, broad, smooth; setal row absent; molar absent; palp long and strong. Lower lip inner lobes absent. Maxilla 1 palp 1-articulate, very short. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate narrower but as long as outer plate, latter elongate; palp article 2 broad and apicomediaally unproduced; palp article 4 absent. Coxae ordinary; coxae 1-4 progressively longer; coxa 4 monocuspitate. Gnathopods alike but of different setations and sizes, carpus and propodus elongate, narrow; both gnathopods chelate. Telson incised.

Paranchiphimedia monodi Ruffo, 1949

(Fig. 74a-s, Map 35: triangle)

References and synonymy. De Broyer *et al.* 2007: 105.

Diagnosis. Paired dorsal teeth on pereonite 7 and pleonites 1-2. Shallow mid-dorsal carina on pleonite 3; mid-dorsal carina on urosomite 1 absent. Posterolateral process on epimeral plates 1-2 produced and pointed; that of plate 3 strongly

produced and pointed. Posteroventral corner on epimeral plate 1 rounded; those of plates 2-3 pointed. Subantennal notch only a shallow depression. Antenna 1 distal margin of first article with 1 processes. Upper lip incised. Mandibular body elongate and strongly tapering distally; incisor oblique, not toothed. Lower lip with rounded unnotched lobes. Maxilla 1 palp unarticulate shorter than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 apex of coxa truncate, weakly oblique; basis concave anteromarginally and convex posteromarginally. Coxae 2-3 with truncate apex. Coxa 4 with rounded apex, posterodistal margin weakly excavate. Coxa 5 posteriorly rounded to subacutely angular. Pereopod 6 coxa posteriorly rounded to subacutely angular; posterior margin of basis sinuous, posteroventral corner pointed. Pereopod 7 coxa posteriorly pointed; posterior margin of basis sinuous, posteroventral corner pointed. Telson with shallow and wide v-shaped excavation.

Size. Male (?) 5 mm.

Remarks. This species has a short, unarticulate maxilla 1 palp, which occurs only in two other Antarctic species: *Pariphimedia normani* and *Pariphimedia integricauda*. From both species *P. monodi* can be discriminated by the presence of paired dorsal processes on pereonite 7 and pleonites 1-2.

Type locality. Bellingshausen Sea: 70°00'S 80°48'W.

Distribution. Only known from type locality.

Depth. Unknown.

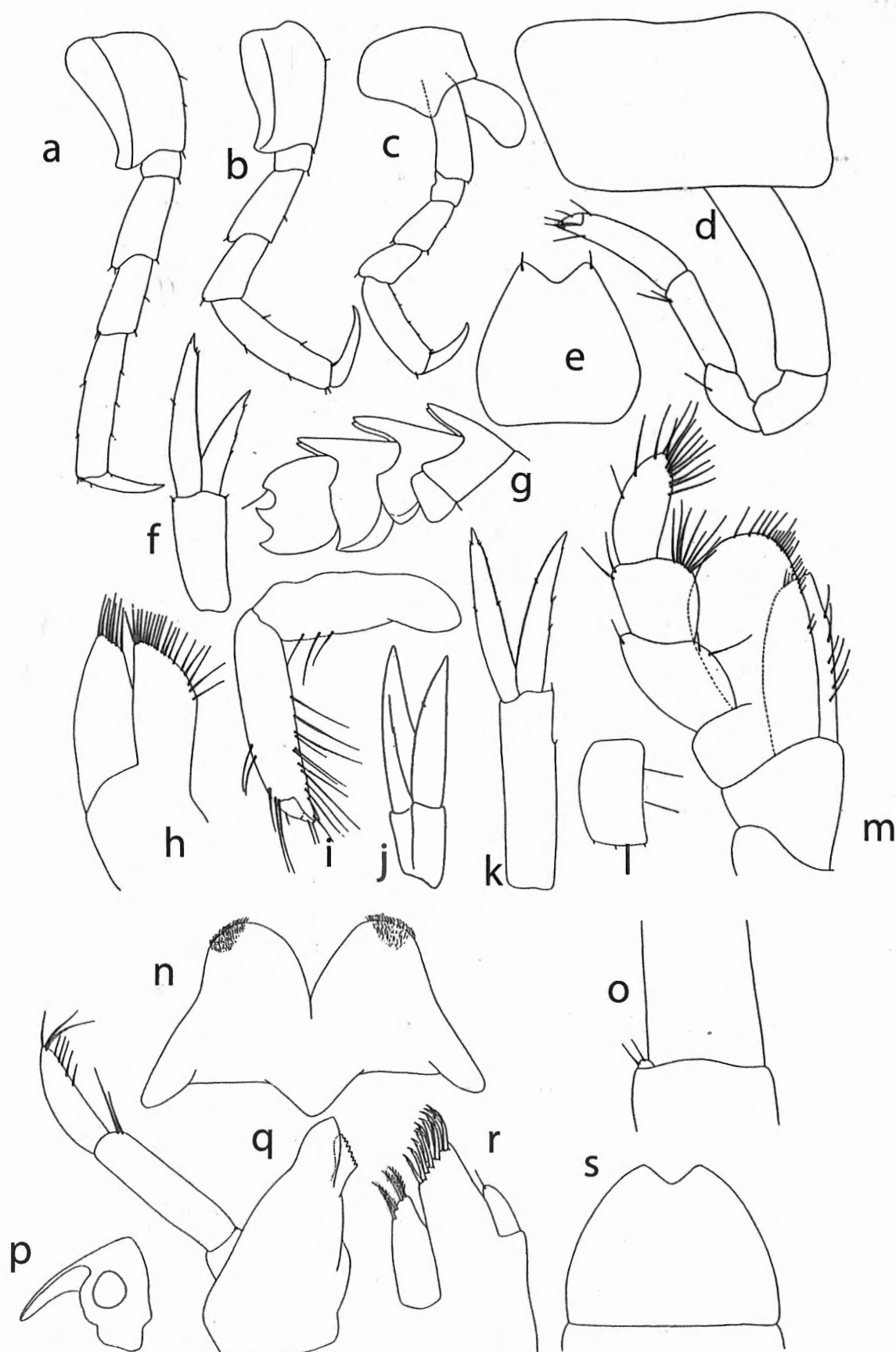


Fig. 74a-s. *Paranchiphimedia monodi*, redrawn after Ruffo, 1949. a) pereopod 8; b) pereopod 6; c) pereopod 4; d) gnathopod 1; e) telson; f) uropod 2; h) maxilla 2; i) carpus to dactylus of gnathopod 2; j) uropod 3; k) uropod 1; l) coxa 3; m) maxilliped; n) lower lip; o) scale-like accessory flagellum; p) head; q) mandible; r) maxilla 1; s) upper lip.

***Parapanoploea* Nicholls, 1938**

Type-species. *Parapanoploea oxygnathia* Nicholls, 1938

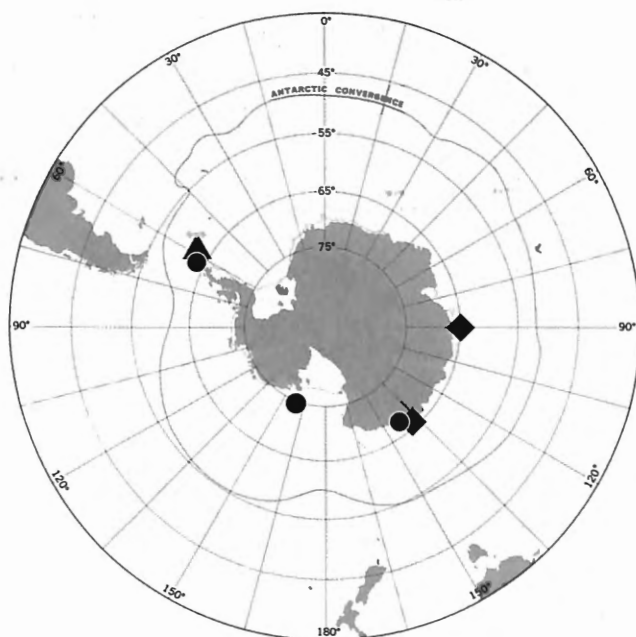
Diagnosis (after Watling & Holman, 1981): Upper lip broad, faintly emarginate. Mandible incisor narrow, elongate. Lower lip lobes not incised. Maxilla 1 palp biarticulate, reaching end of outer plate. Maxilliped palp 4-articulate, article 2 slightly expanded but not produced along article 3. Gnathopods 1 and 2 chelate. Telson notched.

***Parapanoploea longirostris* Bellan-Santini, 1972a**

(Fig. 75a-b, Map 36: rhomb)

References and synonymy. De Broyer *et al.* 2007: 105.

Diagnosis. Paired dorsal teeth on pereonite 7 and pleonites 1-2. Posteroventral corners of pereonites strongly produced and pointed, or not produced anteriorly, somewhat produced posteriorly. Mid-dorsal carinae on pleonites 1-3 wanting. Mid-dorsal carina on urosomite 1 absent. Posterolateral process on epimeral plates 1-2 produced and pointed, that of plate 3 strongly produced and pointed. Posteroventral corner on epimeral plate 1 only inconspicuously pointed, those of plates 2-3 clearly pointed. Subantennal notch narrow, with



Map 36. *Parapanoploea longirostris*: rhomb; *Parapanoploea oxygnathia*: circle; *Parapanoploea recessa*: triangle.

both margins drawn out into pointed teeth, posterior tooth much longer than anterior. Antenna 1 distal margin of first article with one long and one short process; longest process

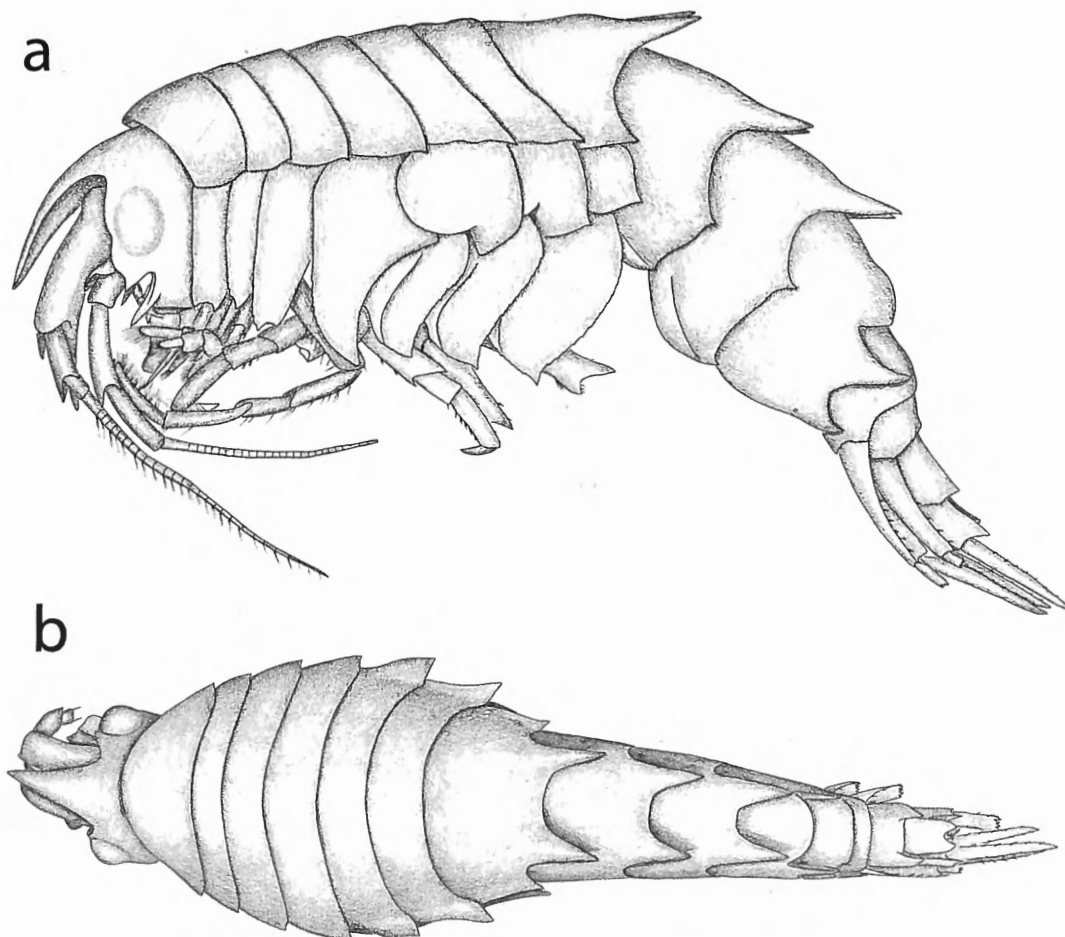


Fig. 75a-b. *Parapanoploea longirostris*. a) left lateral view; b) dorsal view.

of peduncular article 1 not exceeding beyond distal margin of article 2; longest process of peduncular article 2 exceeding beyond distal margin of article 3; first peduncular article longer than second, longer than article 2 and 3 combined. Upper lip weakly incised. Mandibular body elongate and strongly tapering distally; incisor toothed along needle-like apex. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, subequal to outer plate. Second article of maxilliped palp medially weakly produced forward, but not guarding along inside of article 3. Gnathopod 1 apex of coxa strongly tapering and excavate distally; basis strongly concave anteromarginally and convex posteromarginally; carpus = 2.27 x propodus length. Coxa 2 pointed distally, with weak anteroventral depression. Coxa 3 excavate distally, posterior process slightly shorter than anterior one. Coxa 4 pointed distally, posterodistal margin excavate. Pereopod 5 coxa posteriorly rather angular; posterior margin of basis sinuous, posteroventral corner pointed. Pereopod 6-7 coxae posteriorly pointed; posterior margin of bases sinuous, posteroventral corner pointed. Telson with narrow U-shaped excavation.

Size. Female 13 mm.

Remarks. In this species there seem to occur some variability. Different from the description of Bellan-Santini (1972a) the first article of antenna 1 has 3 teeth, the longest of which surpasses the third peduncular article. This is also characteristic for *P. oxygnathia*, so the antenna 1 peduncle armature cannot be used to differentiate these similar species. However, in *P. longirostris* the rostrum is somewhat longer

and coxae 1-3 bear a different apex and there is no trace of keel on pereonite 7 and pleonite 1.

Type locality. Adélie Coast: Géologie Archipelago, southeast of Curie Island (66°39'S 139°55'E).

Distribution. Adélie Coast; Davis Sea.

Depth range. 68-130 m.

Parapanoploea oxygnathia Nicholls, 1938

(Fig. 76a-d, Map 36: rhomb)

References and synonymy. De Broyer *et al.* 2007: 105.

Diagnosis. Paired dorsal teeth on pereonite 7 and pleonites 1-2, with suggestion of a keel on pereonite 7 and pleonite 1; posteroventral corners of pereonites not produced anteriorly, somewhat produced posteriorly. Mid-dorsal carinae on pleonite 1 and pereonite 7, but only shallow. Mid-dorsal carina on urosomite 1 absent. Posterolateral process on epimeral plates 1-2 produced and pointed, that of plate 3 strongly produced and pointed. Posteroventral corner of epimeral plate 1 angular, that of 2-3 pointed. Subantennal notch narrow, with both margins drawn out into pointed teeth, posterior tooth much longer than anterior one. Antenna 1 longest process of peduncular article 1 exceeding beyond distal margin of article 3; process on article 2 exceeding beyond distal margin of article 3; first peduncular article longer than article 2 and 3 combined. Upper lip weakly incised. Mandibular body

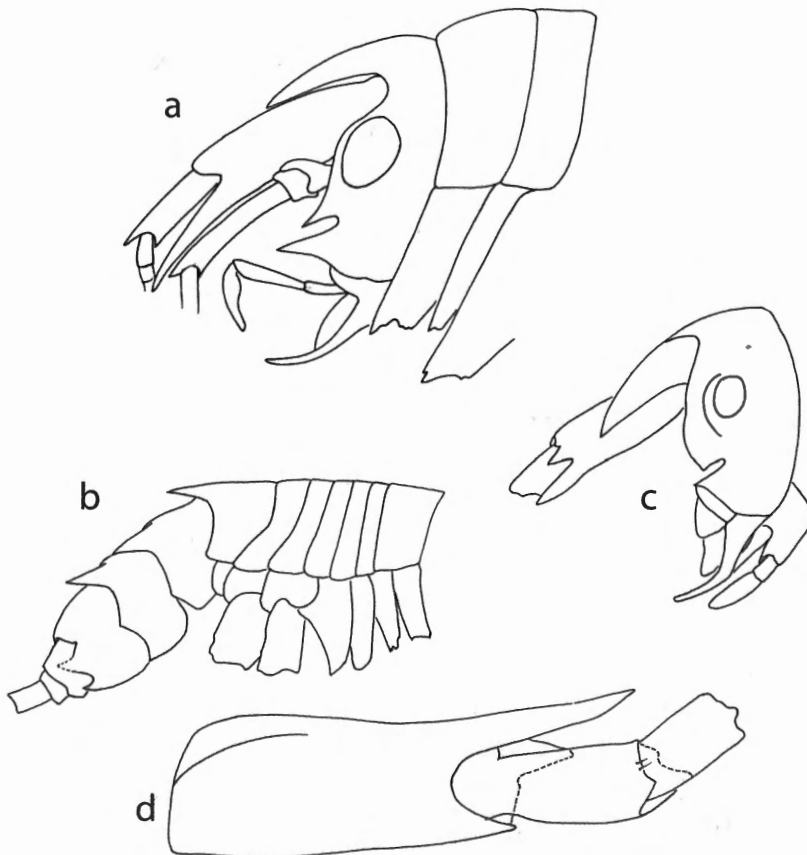


Fig. 76a-d. *Parapanoploea oxygnathia*, redrawn after Nicholls, 1938, and Watling & Holman, 1981. a) head and pereonites 1-2; b) right side view of habitus; c) head; d) peduncle of antenna 1.

elongate and strongly tapering distally; incisor with teeth along needle-like apex. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, subequal to outer plate. Second article of maxilliped palp medially not produced forward and only weakly guarding along inside of article 3. Gnathopod 1 apex of coxa strongly tapering and excavate distally; basis strongly concave anteromarginally and convex

posteromarginally; carpus = 1.38 x propodus length. Coxa 2 pointed distally, with weak anteroventral depression. Coxa 3 excavate distally, but not clearly bifid, posterior margin rounded. Coxa 4 pointed distally, posterodistal margin excavate. Pereopod 5 coxa posteriorly rounded; posterior margin of basis excavate, posteroventral corner pointed. Pereopod 6 coxa posteriorly rounded; posterior margin of

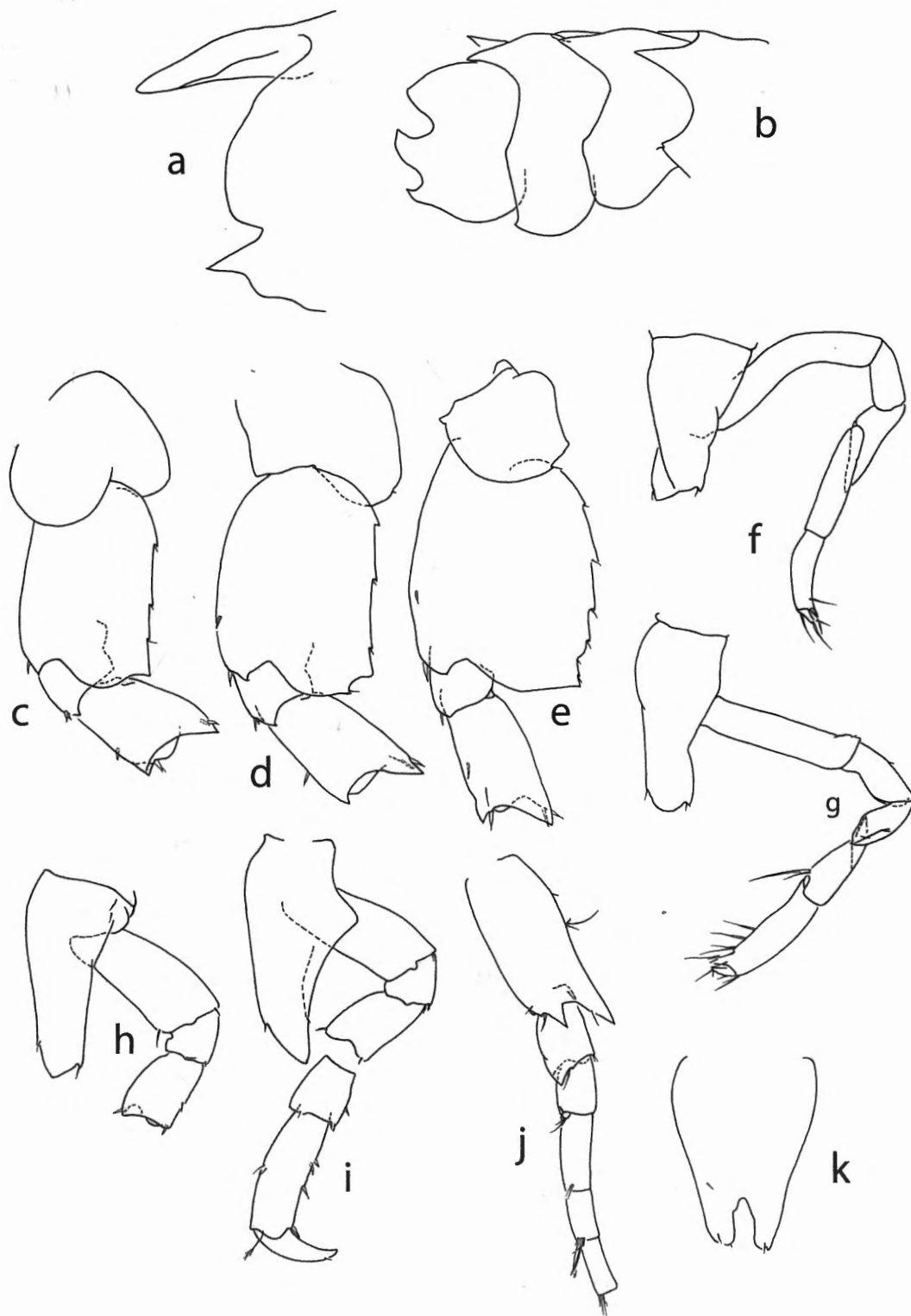


Fig. 77a-k. *Parapanoploea recessa*, redrawn after Andres, 1988b. a) anterior margin of head; b) pereonite 7 and pleonsegments 1-3; c) pereopod 5; d) pereopod 6; e) pereopod 7; f) gnathopod 1; g) gnathopod 2; h) pereopod 3; i) pereopod 4; j) antenna 1; k) telson.

basis straight, posteroventral corner pointed. Pereopod 7 coxa posteriorly pointed; posterior margin of basis sinuous, posteroventral corner pointed. Telson with shallow and wide v-shaped excavation.

Size. Female 12.5 mm.

Remarks. Very similar to *P. longirostris*, see there for remarks. The location "Davis Sea" which occurs frequently in the secondary literature as the type locality seems to be a mistake.

Type locality. Adélie Coast; Commonwealth Bay.

Distribution. Adélie Coast; South Shetland Islands; Ross Sea.

Depth range. 17-357 m.

Parapanoploea recessa Andres, 1988b

(Fig. 77a-k, Map 36: triangle)

References and synonymy. De Broyer *et al.* 2007: 106.

Diagnosis. Short paired teeth on pereonite 7 and pleonites 1-2. Posteroventral corners of pereonites strongly produced and pointed. Mid-dorsal carinae on pleonites and urosomite 1 absent. Posterolateral process on epimeral plates 1 and 2 rounded and weakly produced, that of plate 3 strongly produced and pointed. Posteroventral angle on epimeral plate 1 rounded, those of plates 2-3 pointed. Subantennal notch not deep, anterior margin rounded apically, posterior margin drawn out into acute process. Antenna 1 distal margin of first article with 2 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2; longest process of peduncular article 2 not exceeding beyond distal margin of article 3. Upper lip weakly incised; Mandibular body elongate and strongly tapering distally, very slender; incisor with teeth along needle-like apex. Lower lip with shallow mediobasal notches. Maxilla 1 palp 2-articulate, subequal to outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3, but widened distally. Gnathopod 1 apex of coxa truncate and oblique posterodistally; basis concave anteromarginally and convex posteromarginally; carpus = 1.19 x propodus length. Coxa 2 rounded distally. Coxa 3 truncate and oblique posterodistally. Coxa 4 pointed distally, posterodistal margin excavate. Pereopod 5-6 coxae posteriorly rounded; posterior margin of basis straight, posteroventral corner pointed. Pereopod 7 coxa posteriorly subacutely pointed; posterior margin of basis rounded; posteroventral corner pointed. Telson with narrow U-shaped excavation.

Size. 2.5 mm.

Remarks. As the specimen used in the description seems to be a juvenile, it may be that it belongs to one of the two other species of this genus.

Type locality. 62°10'S 58°30'W.

Distribution. Only known from type locality.

Depth range. 150 m.

Pariphimedia Chevreux, 1906a

Type-species. *Pariphimedia integricauda* Chevreux, 1906a

Diagnosis. Body with few dorsal teeth or processes. Antenna 1 peduncular article 1-2 subequal. Bundle of mouthparts projecting conically. Upper lip almost entire, not very broad. Mandibular incisor cutting surface elongate, oblique, toothed; setal row absent; molar obsolescent. Lower lip inner lobes absent, outer lobes pointed. Maxilla 1 palp 1-articulate, very short. Maxilla 2 inner plate with facial row of setae. Maxilliped inner plate narrower but as long as outer plate, latter elongate; palp article 2 narrow but apicomediaally produced; palp article 4 obsolescent or absent. Coxae ordinary; coxae 1-4 progressively longer; coxae 4-5 forming weak ventral arc; coxa 4 scarcely polycuspidate. Gnathopods chelate. Telson entire.

Pariphimedia integricauda Chevreux, 1906a n. comb.

(Fig. 78a-b, Colour plate 3b, Map 37: rhomb)

Pariphimedia incisa Andres, 1985, p. 121-123, Figs. 5 d-q, 6, 7 a-c.

References and synonymy. De Broyer *et al.* 2007: 106.

Diagnosis. Paired teeth on pleonite 2 only; space between paired dorsal processes narrow, U-shaped. Posteroventral corners of pereonites not produced on segments 1-4, somewhat produced on segments 5-7. Mid-dorsal carina on pleonite 3, as keel with tooth-like process; shallow mid-dorsal carina on urosomite 1 present. Posterolateral process on epimeral plates 1-2 rounded and weakly produced, that of plate 3 strongly produced and pointed. Posteroventral corner on epimeral plates 1-2 angular, that of plate 3 pointed. Subantennal notch absent, but pointed tooth present. Antenna 1 distal margin of first article without processes. Upper lip entire, elongate and apically truncate. Mandibular body elongate and strongly tapering distally; incisor toothed along medial side. Lower lip with weakly pointed apices. Maxilla 1 palp uniaarticulate; shorter than outer plate. Maxilla 2 facial setae on inner plate present. Second article of maxilliped palp medially strongly produced guarding along inside of article 3. Gnathopod 1 apex of coxa rounded distally; basis straight anteromarginally and convex posteromarginally; carpus = 1 x propodus length. Coxa 2-3 with truncate apex, rounded anteroventrally, angular posteroventrally. Coxa 4 with angular apex; posterodistal margin excavate. Pereopod 5 coxa posteriorly pointed; posterior margin of basis straight to weakly excavate, with subacute proximo-posteromarginal lobe, posteroventral corner rounded. Pereopod 6 coxa posteriorly rounded to angular; posterior margin of basis straight, posteroventral corner rounded. Pereopod 7 coxa posteriorly rounded; posterior margin of basis straight, posteroventral corner rounded. Telson truncate.

Size. Female 9-24 mm, male 8-17 mm.

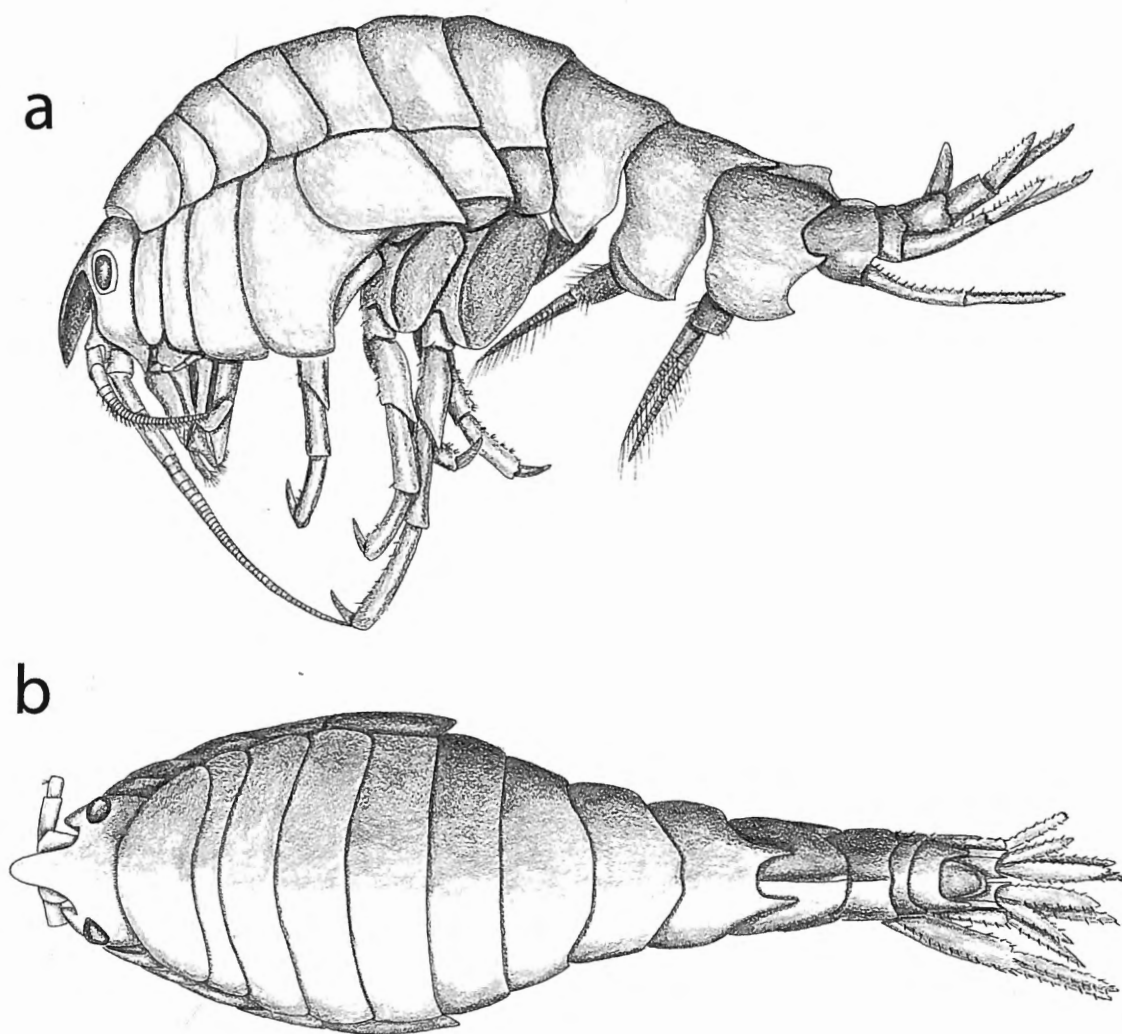
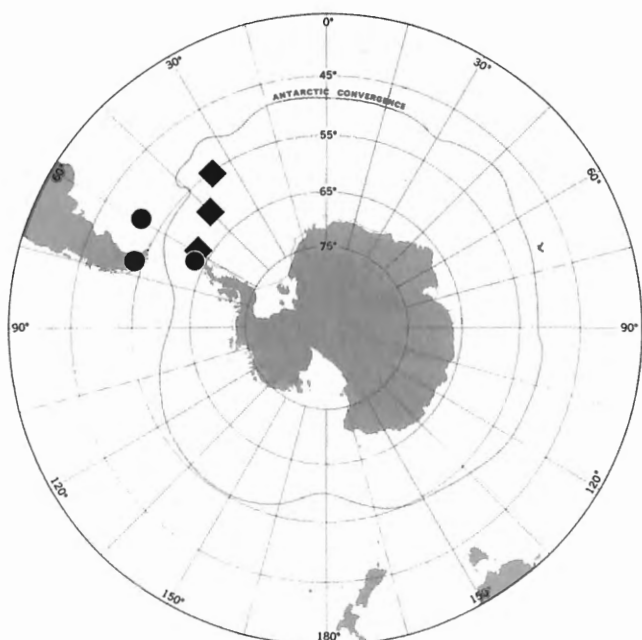


Fig. 78a-b. *Pariphimedia integricauda*. a) left lateral view; b) dorsal view.



Map 37. *Pariphimedia normani*: circle; *Pariphimedia integricauda*: rhomb.

Remarks. The character combination of paired dorsal processes only on pleonite 2 and mid-dorsal keels on pleonite 3 and urosomite 1 are unique in the iphimeriids. *Pariphimedia incisa* is very similar to *P. integricauda*. It is considered synonymous with the last-mentioned species (see Coleman & Barnard, 1991e) for discussion.

Type locality. Wilhelm Archipelago: Booth Island.

Distribution. Danco Coast; Palmer Archipelago; South Orkney Islands; South Sandwich Islands; South Shetland Islands; Trinity Peninsula; Wilhelm Archipelago.

Depth range. 0-145 m.

Pariphimedia normani (Cunningham, 1871)

(Fig. 79a-b, Map 37: circle)

References and synonymy. De Broyer *et al.* 2007: 106.

Diagnosis. Mid-dorsal body side smooth, without any teeth or keel. Posteroventral corners of pereonites 1-4 not produced and rounded, angular on pereonites 5-7. Mid-dorsal carinae on pleonites and urosomites absent. Posterolateral process on epimeral plates 1-2 rounded and weakly, that of plate 3 strongly produced and shortly pointed. Posteroventral corner on epimeral plate 1 angular, those of plates 2-3 pointed. Subantennal notch absent, but pointed tooth present. Antenna 1 distal margin of first article with 1 short process, not exceeding beyond distal margin of article 2; longest process of peduncular article 2 not exceeding beyond distal margin of article 3. Upper lip elongate and entire. Mandibular body elongate and strongly tapering distally; incisor shortly toothed along medial side. Lower lip with pointed apices. Maxilla 1 palp uniarticulate, shorter than outer plate. Maxilla 2 with facial setae on inner plate. Second article of maxilliped palp

medially strongly produced guarding along inside of article 3, almost reaching apex of article 3. Gnathopod 1 apex of coxa rounded or subacutely pointed distally; basis concave anteromarginally and convex posteromarginally; carpus = 1.65 x propodus length. Coxa 2 with truncate apex. Coxa 3 truncate and oblique anterodistally. Coxa 4 with rounded apex, posterodistal margin straight. Pereopod 5 coxa posteriorly rounded; posterior margin of basis straight, posteroventral corner rounded. Pereopod 6-7 coxae posteriorly rounded; posterior margin of bases rounded, posteroventral corner rounded. Telson with wide and shallow rounded excavation, very shallowly emarginate.

Size. Female 12-16 mm.

Remarks. Devoid of any paired dorsal teeth and no keels on pleonites and urosomites. This combination is unique within Antarctic iphimediids.

Type locality. Magellan Area: Isla Elizabeth.

Distribution. Falkland Islands; Magellan Area; South Shetland Islands.

Depth range. 0-124 m.

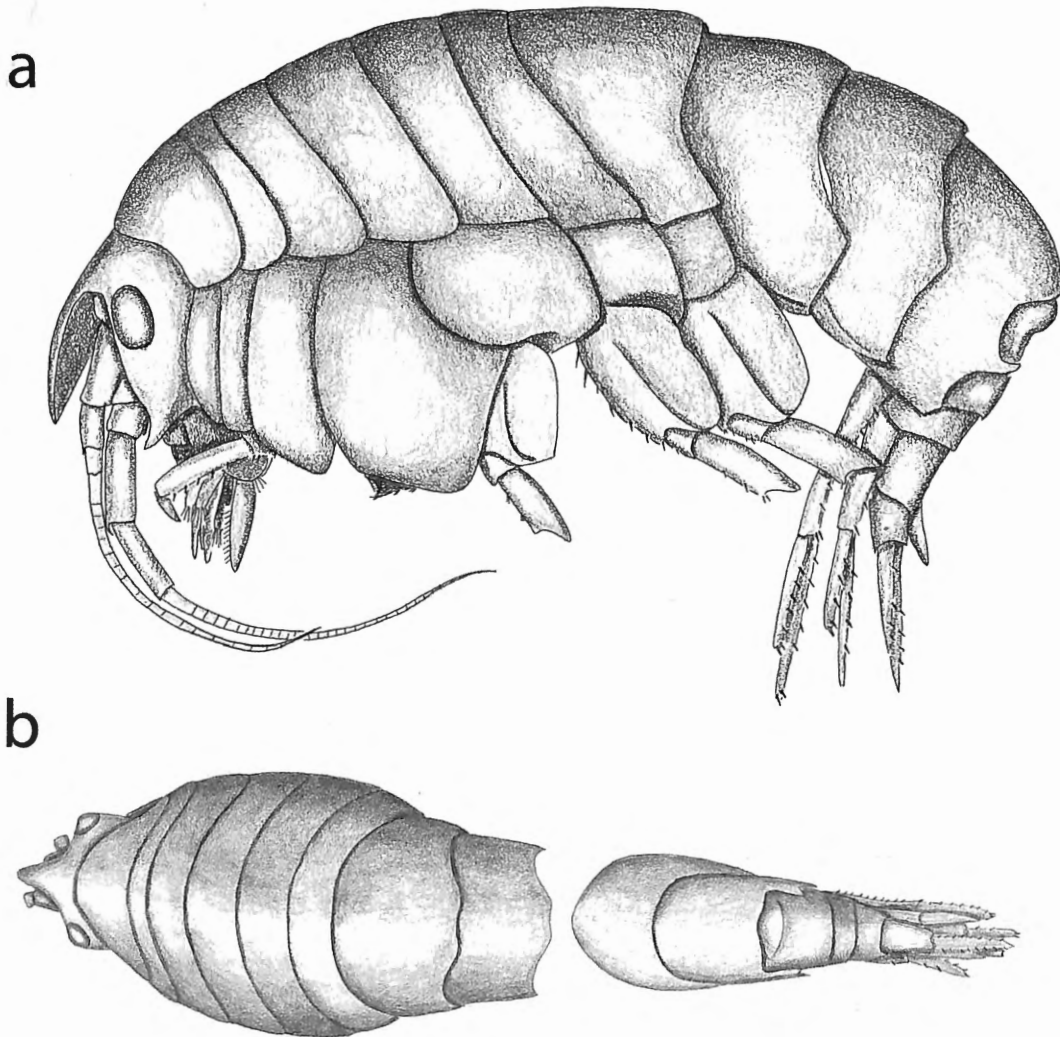


Fig. 79a-b. *Pariphimedia normani*. a) left lateral view; b) dorsal view.

Pseudiphimediella Schellenberg, 1931a

Type-species. *Ampithoe nodosa* (Dana, 1852a).

Diagnosis. Dorsal body side covered with teeth or processes. Antenna 1 peduncular article 2 shorter than 1. Mouthparts projecting quadrately. Upper lip incised, not very broad, cutting frontally, weakly toothed; setal row absent; molar absent. Lower lip inner lobes absent. Maxilla 1 palp 2-articulate, article 2 ordinary. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate as long but not as broad as outer plate, palp article 2 broad and apicomediaally unproduced; palp article 4 obsolescent. Coxae ordinary. Gnathopods scarcely diverse, of slightly different sizes, carpus and propodus elongate, narrow. Gnathopod 2 more strongly setose than 1. Telson scarcely incised.

Pseudiphimediella glabra Schellenberg, 1931

(Fig. 80a-b, Map 38: circle)

References and synonymy. De Broyer *et al.* 2007: 107.

Diagnosis. Paired teeth on pereonites 6-7 and pleonites 1-3 with an additional tooth from pereonite 7 to pleonite 2 on both sides of dorsal pair of processes, space between paired dorsal processes narrow, U-shaped, with ridges dorsomedially. Posteroventral corners of pereonites rounded and not produced on pereonites 1-4, somewhat produced posteriorly, that of pereonite 7 strongly pointed. Mid-dorsal carinae on pleonites 1-3. Mid-dorsal carina on urosomite 1 present, shallow and pointed. Posterolateral process on epimeral plates 1-3 produced and strongly pointed. Posteroventral corner on epimeral plate 1 pointed to angular, those of plates 2-3 pointed. Subantennal notch narrow and shallow, additional wider notch ventrally. Antenna 1 distal margin of first article with 3 processes of different length, longest process barely exceeding beyond distal margin of article 3; longest process of peduncular article 2 not exceeding beyond distal margin of article 3; uniaarticulate accessory flagellum present, but quite small. Upper lip entire. Mandibular body

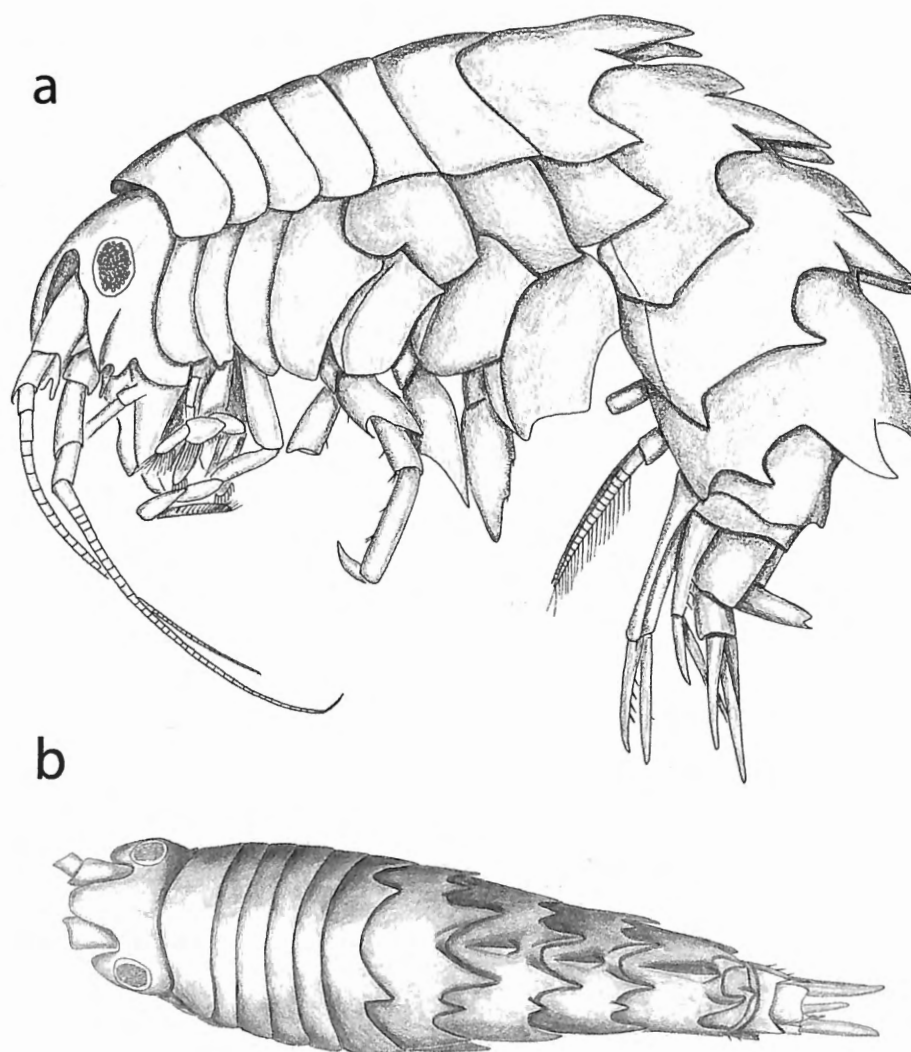
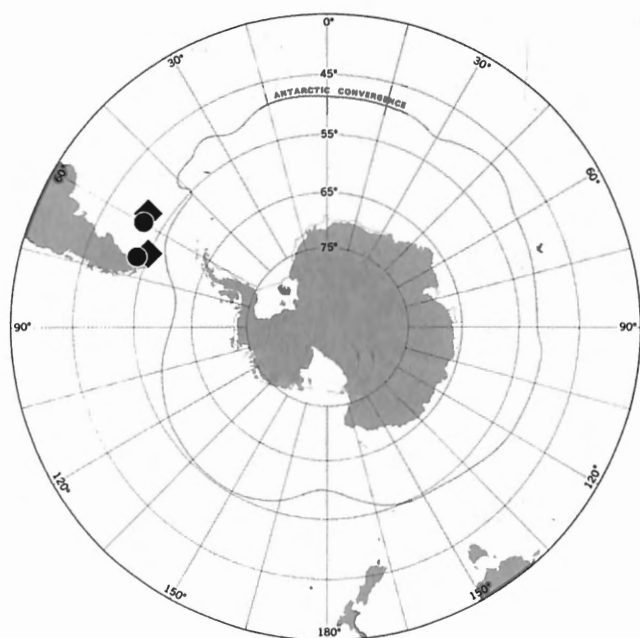


Fig. 80a-b. *Pariphimediella glabra*. a) left lateral view; b) dorsal view.



Map 38. *Pariphimediella glabra*: rhomb; *Pariphimediella nodosa*: circle.

elongate and strongly tapering distally; incisor toothed, with oblique cutting edge. Lower lip with wide and rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp medially not produced forward and not guarding along inside of article 3. Gnathopod 1 apex of coxa rounded distally to truncate; basis concave anteromarginally and convex posteromarginally; carpus = 0.76 x propodus length. Coxa 2 somewhat truncate and oblique posterodistally. Coxa 3 rounded distally to truncate and somewhat oblique posterodistally. Coxa 4 with angular apex, posterodistal margin excavate. Pereopod 5 coxa posteriorly angularly pointed; posterior margin of basis weakly excavate, produced proximo-posteromarginal pointed tooth, posteroventral corner very bluntly angular. Pereopod 6 coxa posteriorly pointed; posterior margin of basis straight to weakly excavate, produced and acute proximo-posteroventral lobe, posteroventral corner angular. Pereopod 7 coxa posteriorly pointed; posterior margin of basis tricuspidate; posteroventral corner of basis pointed, bluntly produced. Telson with very shallow and wide v-shaped excavation and somewhat irregular margin.

Size. Female 9-17 mm.

Remarks. *Pseudiphimediella glabra* is similar to *P. nodosa*. They differ in the following: the habitus of *P. nodosa* is more robust, the dorsal teeth are broader and shorter compared to *P. glabra*. *P. glabra* bears a mid-dorsal tooth on urosomite 1. The upper lip of *P. nodosa* is incised, but truncate in *P. glabra*. The first peduncular article of antenna 1 of *P. nodosa* bears teeth of subequal length apically, but they are of different length in *P. glabra*. Article 2 of antenna 2 has short processes in *P. nodosa*, they are longer in *P. glabra*. The third article of the mandibular palp of *P. glabra* is strongly curved laterally, but normal in *P. nodosa*. The maxillular palp is broader in *P. nodosa*. The inner plate of maxilla 2 is broad and expanded distally in *P. glabra* (normal in *P. nodosa*). Articles 1 and 2 of

the maxilliped palp are broadened and densely covered with setae in *P. nodosa* (possibly not always?). Gnathopod 1 of *P. nodosa* has a shorter merus, carpus and propodus than in *P. glabra*. Coxae 3-4 are wider in *P. nodosa*. The bases and ischia of pereopod 5-7 bear a conspicuous acute distal process in *P. nodosa* (short in *P. glabra*). The basis of pereopod 7 of *P. nodosa* is slightly excavate, forming 2 short processes, but bi-excavate in *P. glabra* resulting in 3 processes. The telson of *P. nodosa* is rounded or truncate distally, but excavate in *P. glabra*.

Type locality. Burdwood Bank: 53°45'S 61°10'W. Falkland Islands: Berkeley Sound; Port Albemarle; 52°29'S 60°36'W. Magellan Area: Rio Seco; Cabo Valentina; Bahía Ushuaia; Ultima Esperanza; Magellan Sound; Punta Arenas.

Distribution. Burdwood Bank; Falkland Islands; Magellan area.

Depth range. 2-494 m.

Pseudiphimediella nodosa (Dana, 1852a)

(Fig. 81a-b, Map 38: circle)

References and synonymy. De Broyer *et al.* 2007: 107.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-3; space between paired dorsal processes narrow, U-shaped and ridges dorso-medially. Additional dorsolateral teeth on pereonite 6 (short protuberances already on pereonite 5) to pleonite 2 on both sides of dorsal pair of processes. Posteroventral corners of pereonites rounded on pereonites 1-6, that of pereonite 7 strongly pointed. Mid-dorsal carinae on pleonites 1-3. Mid-dorsal carina on urosomite 1 absent, only hump present. Posterolateral process on epimeral plates 1-3 produced and strongly pointed; that of plate 3 shorter than that of preceding segment. Posteroventral corner on epimeral plate 1 pointed to angular; those of plates 2-3 pointed. Subantennal notch narrow and shallow. Antenna 1 distal margin of first article with 3 equally long processes; these not exceeding beyond distal margin of article 2; longest process of peduncular article 2 not exceeding beyond distal margin of article 3; first peduncular article elongate; unarticulate accessory flagellum present, but quite small. Upper lip incised. Mandibular body bulky; incisor with apical teeth. Lower lip with rounded unnotched lobes. Maxilla 1 palp 2-articulate, longer than outer plate. Second article of maxilliped palp very wide and somewhat produced medially, guarding along inside of article 3. Gnathopod 1 apex of coxa pointed distally and truncate and oblique posterodistally; basis concave anteromarginally and convex posteromarginally; carpus = 0.83 x propodus length. Coxa 2 with truncate apex, or truncate and weakly oblique posterodistally. Coxa 3 rounded distally. Coxa 4 with rounded apex, posterodistal margin excavate. Pereopod 5 coxa posteriorly subacutely pointed; posterior margin of basis weakly excavate, produced proximo-posteromarginal pointed tooth, posteroventral corner rounded. Pereopod 6 coxa posteriorly pointed; posterior margin of basis straight to weakly excavate, produced and acute proximo-

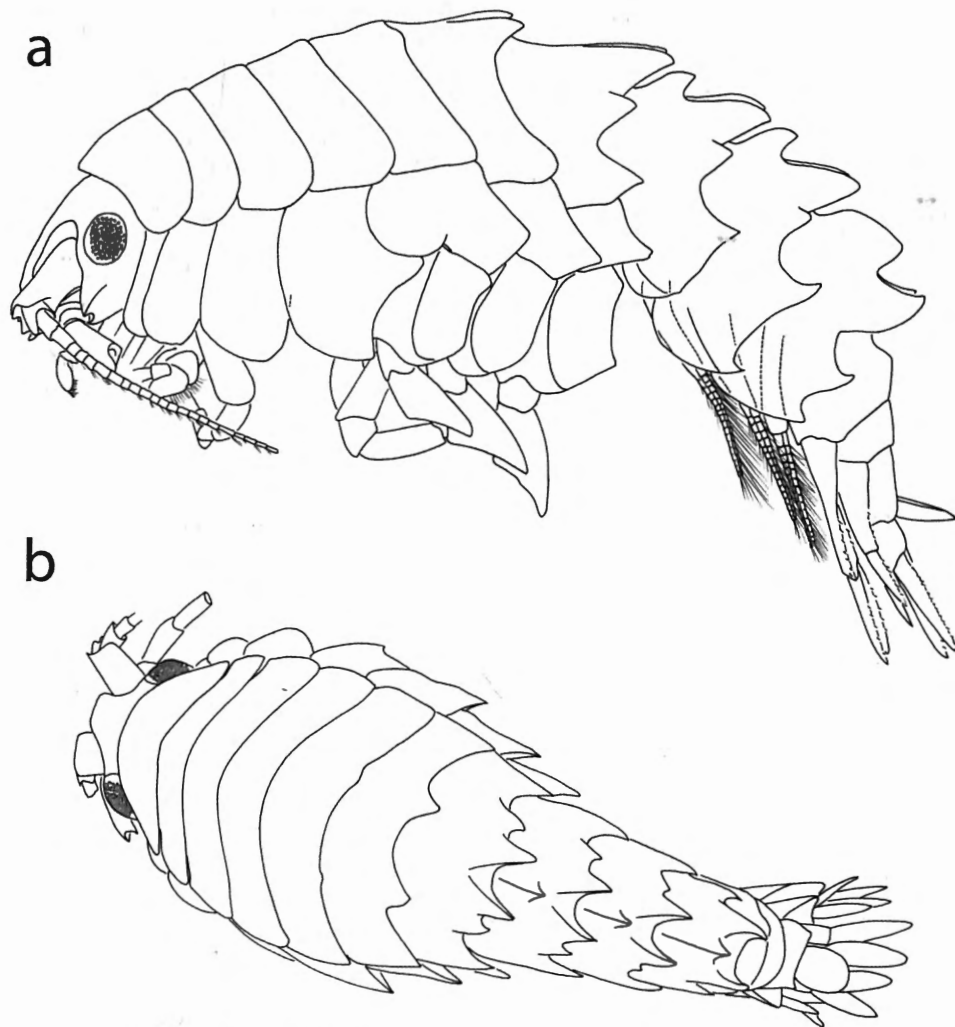


Fig. 81a-b. *Pariphimediella nodosa*. a) left lateral view; b) dorsal view.

posteroventral lobe, posteroventral corner rounded. Pereopod 7 coxa posteriorly subacutely pointed; posterior margin of basis excavate (proximo-posteromarginal tooth present), posteroventral corner pointed. Telson entire, longer than wide.

Size. Ovigerous female 7.5-15 mm.

Remarks. See those of *P. glabra*.

Type locality. Magellan Area: Tierra del Fuego, Isla Hermite.

Distribution. Falkland Islands; Magellan area.

Depth range. Low tide to 150 m.

Stegopanoploea Karaman, 1980b

Type-species. *Panoploea joubini* Chevreux, 1912a

Diagnosis (after Barnard & Karaman, 1991). Body with strong dorsal teeth and processes. Rostrum very long. Antenna 1 peduncular article 1 nearly twice as long as 2, accessory flagellum absent. Mouthparts projecting conically. Upper lip entire, rather narrow, epistome not very broad. Mandibular incisor narrow and long, toothed, setal row absent; molar well developed; triturative. Inner lobes of lower lip absent, outer lobes narrow, long pointed distally, with nearly smooth inner margin. Maxilla 1 with short palp, 2-articulate, ratio of articles normal. Maxilla 2 inner plate with facial row of setae. Maxilliped inner plate narrower and shorter than outer plate; palp 3-articulate, article 2 apicomediaally produced. Coxae 1-4 progressively longer, coxae 4-5 forming ventral arc; coxa 4 strongly polycuspidate. Gnathopod 1 chelate, gnathopod 2 poorly subchelate. Telson incised.

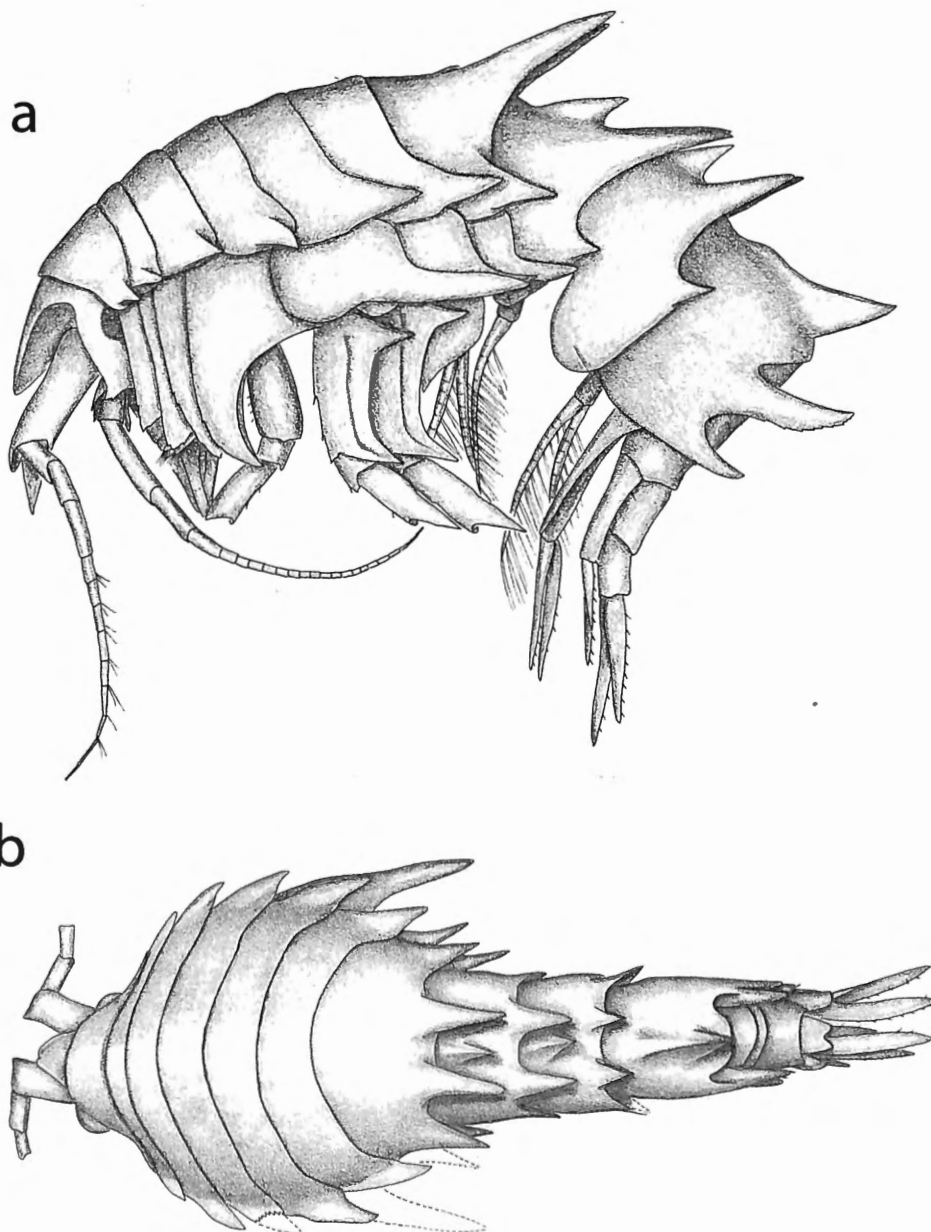
Stegopanoploea joubini (Chevreux, 1912a)

(Fig. 82a-b, Map 39: rhomb)

References and synonymy. De Broyer *et al.* 2007: 107.

Diagnosis. Paired teeth on pereonite 7 and pleonites 1-2; space between paired dorsal processes relatively narrow, U-shaped. Posteroventral corners of pereonites strongly produced and pointed. Mid-dorsal carinae on pleonites 1-3 drawn out into pointed tooth, that on pleonite 3 largest; mid-dorsal carina on urosomite 1 absent. Pereonite 2 shorter than 1, about half the size of pereonite 1. Posterolateral process on epimeral plate 1 strongly produced and pointed; that of plate 2 strongly produced and pointed and that of plate 3 very strongly produced, pointed and ventrally serrate. Posteroventral corner on epimeral plates 1-2 rounded and tapering distally; plate 3 strongly produced and pointed. Subantennal notch very wide, only a shallow excavation

with rounded margins. Antenna 1 first article elongate, much longer than second, distal margin with 2 processes; longest process of peduncular article 1 not exceeding beyond distal margin of article 2, but almost reaching it; distal process of peduncular article 2 not exceeding beyond half length of article 3. Upper lip longer than wide, tapering distally, entire. Mandibular body elongate and strongly tapering distally; incisor with teeth along medial side; mandibular molar rudimentary. Lower lip with pointed apices. Maxilla 1 palp much shorter than outer plate, 2-articulate. Maxilla 2 facial setae on inner plate present. Second article of maxilliped palp medially somewhat produced guarding along inside of article 3. Gnathopod 1 apex of coxa pointed distally; basis concave anteromarginally and convex posteromarginally; carpus = 1.38 x propodus length. Coxae 2-4 pointed distally. Posterodistal margin of coxa 4 deeply excavate. Pereopod 5 coxa drawn out into long tooth posteriorly; posterior margin of basis excavate, posteroproximal and posteroventral corner

Fig. 82a-b. *Stegopanoploea joubini*. a) left lateral view; b) dorsal view.

cuspidate. Pereopod 6 coxa posteriorly pointed, but not drawn out as much as on pereopod 5; basis similar in shape to that of pereopod 5, but wider. Pereopod 7 coxa pointed posteriorly; posterior margin of basis sinuous, posteroventral corner strongly produced and pointed. Telson with shallow and wide v-shaped excavation, or with wide and shallow rounded excavation.

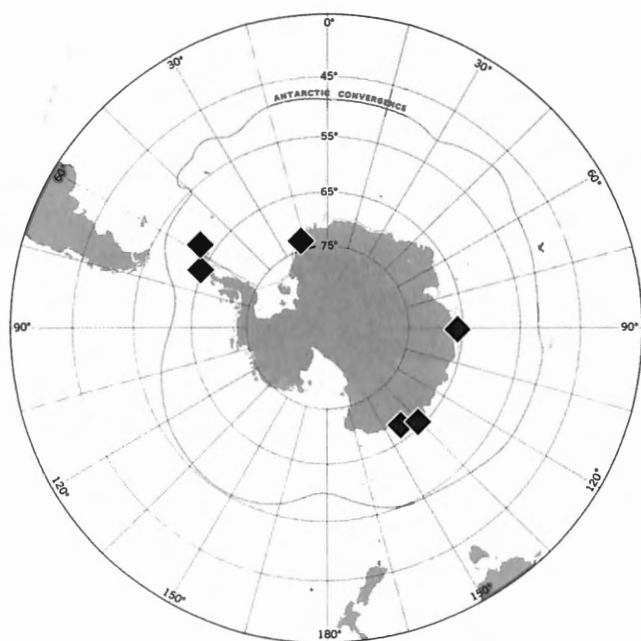
Size. Ovigerous female 8-10 mm.

Remarks. This species has a similar dorsal armature as *Iphimedia macrocystidis* and both species share a shortened maxilla 1 palp. However, *S. joubini* differs in the following: posteroventral corners of pereonites 1-4 pointed, coxae 1-3 pointed, epimeral plate 2 ventrally rounded, bases 5-6 bidentate posteromarginally (vs. multidentate). The shortened maxilla 1 palp also occurs in *Anchiphimedia dorsalis*, but in this species the dorsal armature and the apices of coxae 1-3 are different.

Type locality. Marguerite Bay: South of Jenny Island, Adelaide Island, Graham Land.

Distribution. Adélie Coast; Davis Sea; Marguerite Bay; Palmer Archipelago; South Shetland Islands; Weddell Sea.

Depth range. 45-540 m.



Map 39. *Stegopanoploea joubini*: rhomb.

OCHLESIDAE Stebbing, 1910

Type species. *Ochlesis innocens* Stebbing, 1910

Diagnosis. Body laterally compressed. Head telescoped into pereonite 1, with small round or reniform eyes. Pereonites and pleonites projecting as dorsal keel. Rostrum well developed. Antennae 1-2 short, few flagellar articles; accessory flagellum absent. Mouthparts conically projecting ventrally. Epistome and upper lip narrow, long. Mandible incisor elongate, toothed, needle-shaped or blunt; molar small and produced; palp 3-articulate, third article slender, with very short marginal setae and some terminal setae. Inner plate of maxilla 1 minute, with reduced setation; outer plate slender, setation along very oblique apex; palp shortened unicarticulate (except normal sized and 2-articulate in *Antarctodius*). Maxilla 2 inner plate wider and shorter than outer plate, both with terminal setae. Plates of maxilliped slender, palp 0-4 articulate. Coxae 1 and 4 shortened or coxae 1-4 subequal in length. Gnathopod 1 with elongate carpus and propodus, simple or chelate. Pereopod 5-7 bases wide. Epimeral plate 3 with pointed posterventral angle, occasionally additional tooth on posterolateral margin. Telson elongate strongly tapering distally, sometimes with terminal notch.

List of genera. *Antarctodius* Berge, Vader & Coleman, 1999; *Curidia* Thomas, 1983; *Cryptodius* Moore, 1992; *Meraldia* Barnard & Karaman, 1987; *Ochlesis* Stebbing, 1910; *Ochlesodius* Ledoyer, 1982; *Odius* Lilljeborg, 1865; *Postodius* Hirayama, 1983.

Antarctodius Berge, Vader & Coleman, 1999

Type-species. *Antarctodius antarcticus* (Watling & Holman, 1981)

Diagnosis (after Berge et al., 1999). Body with rudimentary dorsal keel. Pleonites 1 and 2 dorsally smooth; pleonite 3 dorsally weakly produced. Upper lip apically cleft; mandible toothed. Lower lip long but apically truncated, covered with small setae. Maxilla 1 palp powerful, 1-articulate. Maxilliped palp with 4 articles. Gnathopod 1 chelate. Gnathopod 2 subchelate. Telson cleft.

Antarctodius antarcticus (Watling & Holman, 1981)

(Fig. 83, Map 40: rhomb)

References and synonymy. De Broyer et al. 2007: 170.

Diagnosis. Head with well-developed rostrum, surpassing distal margin of peduncular article 1 of antenna 1; eyes small, not reniform. Antennae 1 and 2 short. Maxilla 1 with palp reaching outer plate. Pereonites 1-7 with not very sharp dorsal keel. Pleonites 1-3 with conspicuous keel, pleonite 3 with posterior hump. Epimeral plates 1-2 with unproduced

posteroventral angle, epimeral plate 3 with 1 ventral and 1 lateral projection on posterior margin. Urosomites 1-3 smooth, except for dorsolateral ridges on both sides of urosomites 2-3. Coxa 1 distally rounded, gnathopod 1 chelate. Gnathopod 2 subchelate, merus posterodistal corner free and angular, carpus drawn out posterodistally. Pereopod 2-3 anterior margin of coxae slightly concave, anteroventral corner rounded, apex truncate. Coxa 4 anterior margin sublinear, anteroventral corner angular, apex straight, posterodistal margin forming together with that of coxa 5 an excavation.

Coxa 6 longer than wide, anterior margin straight, ventrally sinuous. Pereopod 5-7 bases broad, with anterior and posterior margin weakly convex, posterodistal region lobate, apically rounded; posterior end of merus drawn out and pointed. Telson tapering distally, cleft one third.

Size. Female 5 mm.

Remarks. In the original description of *A. antarcticus* the palp of maxilla 1 is described as 1-articulate. The author checked this character on *A. antarcticus* specimens from the collection of the Museum für Naturkunde Berlin and found that also this species has a 2-articulate maxilla 1 palp.

This species is similar to *Antarctodius rauscherti* Coleman & Kauffeldt, 2001. For differences see Table 6.

Type locality. South Shetland Islands: *Eltanin* 12, St. 1003, 62°41'S 54°43'W.

Distribution. South Shetland Islands; Weddell Sea.

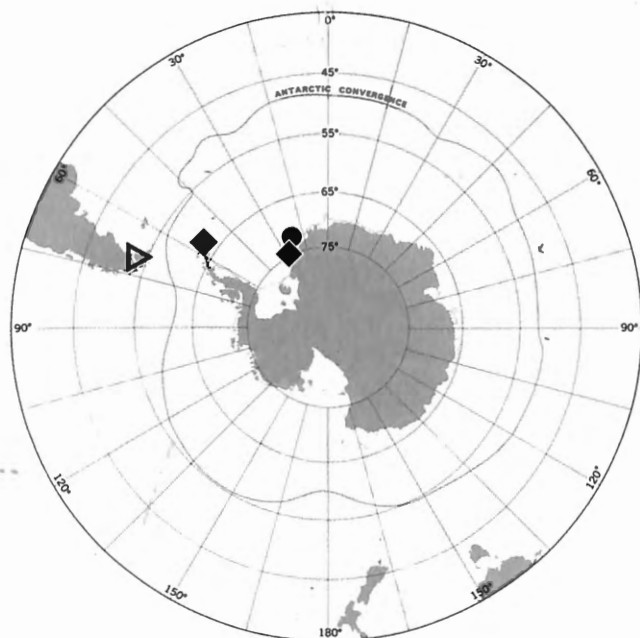
Depth range. 146-227 m.

Antarctodius rauscherti Coleman & Kauffeldt, 2001

(Fig. 84, Map 40: circle)

References and synonymy. De Broyer *et al.* 2007: 170.

Diagnosis. Eyes apparently not present, or if so pigments washed out in alcohol; rostrum strongly flexed and shortened, not surpassing half length of peduncular article 1 of antenna 1. Pereonites 1 and 3 subequal in length; pereonite 2 shortest and pereonites 6 and 7 longest; pleonites subequal in length to pereonite 7. Pereon and pleon with keel, on pleon segment 3 shallow keel only anteriorly, posterior dorsal surface rounded. Epimeral plates 1-3 posteroventral corner pointed,



Map 40. *Antarctodius antarcticus*: rhomb; *Antarctodius rauscherti*: circle; *Curidia magellanica*: open triangle.

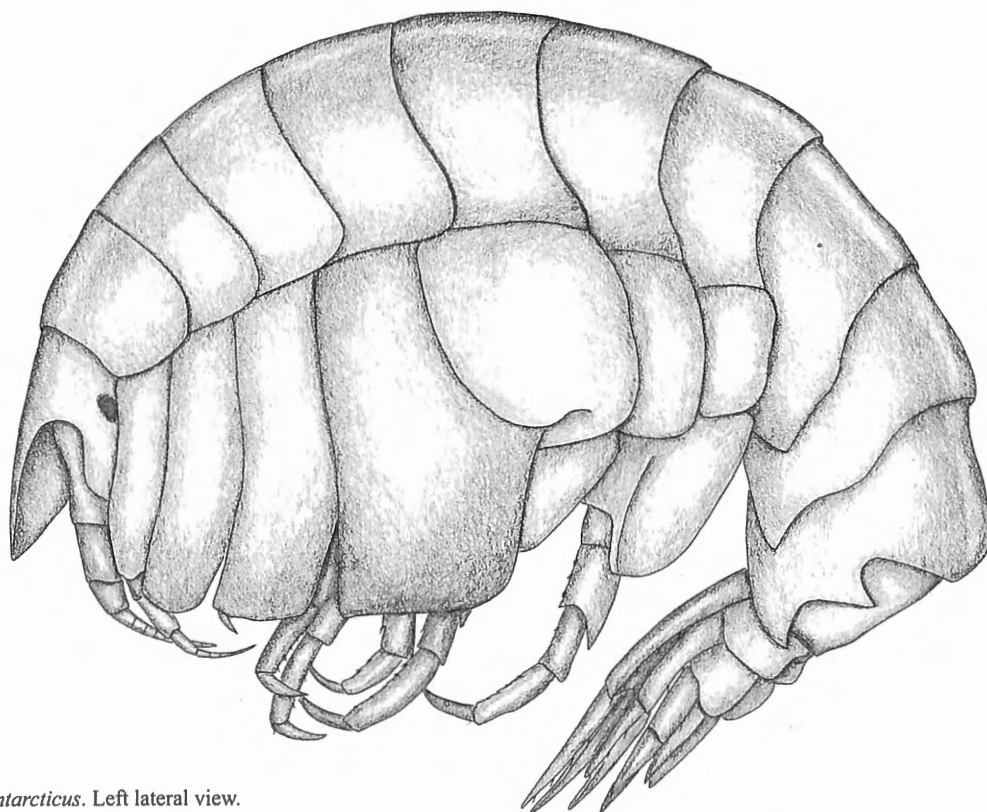


Fig. 83. *Antarctodius antarcticus*. Left lateral view.

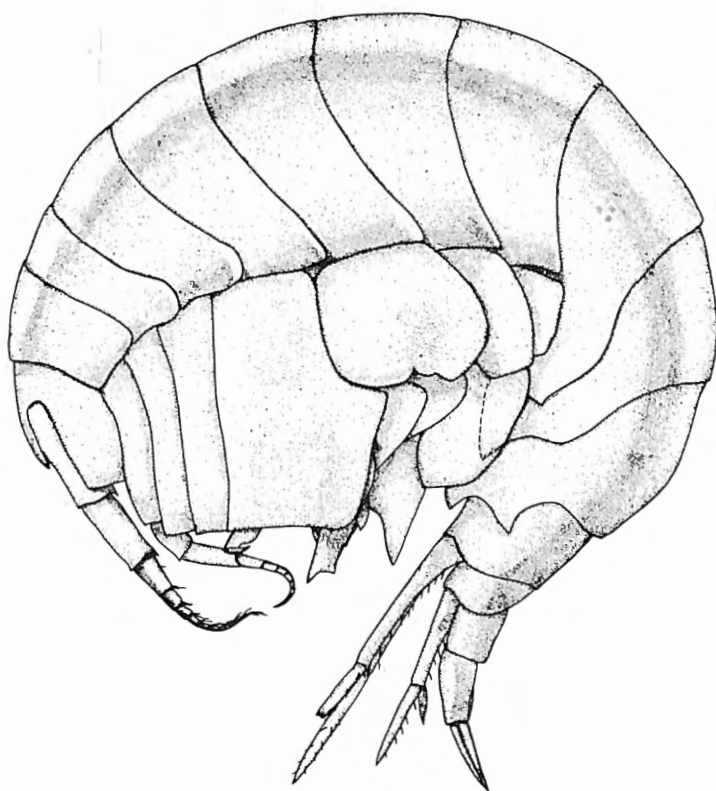


Fig. 84. *Antarctodius rauscherti*. Left lateral view.

posterolateral margin lobate and rounded on pleonites 1 and 2, produced and pointed on pleonite 3. Posterodorsal hump on pleonite 3 absent. Urosomite 1 smooth, subequal in length to urosomites 2-3 combined. Urosomite 2 shortest, dorsally rounded. Urosomite 3 with laterodorsal ridge-like elevations. Antenna 1 peduncle article 1 slightly surpassing ventral margin of head, subequal to articles 2 and 3 combined, posteroventromedial angle acutely produced, article 3 with inconspicuous indication of point, flagellum 9-articulate, each equipped with long aesthetascs. Antenna 2 peduncle articles 1-3 about the length of article 4, article 5 subequal in length to article 4; flagellum 8-articulate. Upper lip strongly tapering distally and clearly notched apically, apex of right side slightly shortened. Mandibular body slender with pointed apex. Lower lip lobes narrow, oblique apically and with shallow depression apicomediaally and deep excavations medially. Maxilla 1 outer plate elongate, pointed, with oblique margin bearing stout serrate, spine-like setae on medial margin; palp 2-articulate, reaching to distal end of outer plate; inner plate short, with 3 apical setae. Maxilliped basis and outer plate about subequal in length; inner plate narrow with distomedial angle produced; outer plate relatively wide, rounded apically, longer than distal margin of article 2 of palp; palp 4-articulate, somewhat longer than outer plate. Gnathopod 1 coxa shorter than that of gnathopod 2, tapering distally, anterior margin concave, posterior margin rather straight; carpus elongate; propodus 73% of carpus length; propodus process of chela substituted by stout spine, dactylus bulky, with spine apically. Gnathopod 2 coxa

concave anteromarginally, truncate apically; carpus lobe less than half the length of propodus; propodus weakly expanded distally, with serrate palm; dactylus stout with pointed process on inner margin. Coxa 3 excavate anteromarginally, with truncate angular apex, subequal to that of coxa 2. Coxa 4 straight anteromarginally, slightly angularly produced anterodistally, ventral margin truncate, posteroventral angle rounded, posterior margin drawn out into a long pointed process. Pereopod 5 coxa not strongly produced laterally, wider than long, posteriorly angular and subacute, anterior lobe rounded; basis both margins weakly convex, produced into rounded lobe posteroventrally. Pereopod 6 coxa longer than wide, posteriorly rather rounded; basis longer than wide, both margins convex, posteroventral margin lobe-like. Pereopod 7 coxa smallest; basis wide, posterior margin clearly convex, posteroventral margin lobe-like. Uropod 1 rami subequal in length. Uropod 2 peduncle shorter than inner ramus; outer ramus shorter than inner, rami each with a terminal spine, both margins spinose. Uropod 3 peduncle short; outer ramus shorter than inner, both rami spinose. Telson elongate, longer than distal margin of peduncle of uropod 3, tapering distally, cleft 55% of length, with 2 pairs of long slender dorsal facial setae.

Size. 3.9-5.7 mm.

Remarks. This species is similar to *Antarctodius antarcticus* (Watling & Holman, 1981). For differences see Table 6.

Type locality. Weddell Sea: 73°37.0'S 22°24.9'W.

Distribution. Only known from type locality.

Depth range. 756 m.

Table 6. Comparison of *Antarctodius antarcticus* and *A. rauscherti*.

	<i>A. antarcticus</i> , female 5 mm	<i>A. rauscherti</i> , holotype female 5.7 mm
cuticle	strongly sclerotized, not transparent	soft and transparent
rostrum	surpassing ventral margin of head, rather straight and stout	strongly shortened and flexed
peduncle of antenna 1	bulky, article 3 not surpassing apex of coxa 1; stout with straight apical margins	elongate, article 2 surpassing apex of coxa 1; pointed posterodistomedial acute processes on articles 1-2
peduncle article 4 of antenna 2	length 1.6 x breadth	length 3 x breadth
peduncle article 5 of antenna 2	length 1.5 x breadth	length 3.5 x breadth
apex of coxae 2 and 3	truncate with anterior and posterior angles rounded	truncate with anterior and posterior angles angular
coxa 5	strongly produced laterally	not strongly produced laterally
pleonite 3	with dorsal hump posteriorly	smooth
dorsal surface of urosomite 2	with lateral ridge-like elevations	smooth

***Curidia* Thomas, 1983**

Type species. *Curidia debrogania* Thomas, 1983

Diagnosis (emended after Thomas, 1993). Articles 1 and 2 of antenna 1 each with long ventrodistal tooth, peduncular article 1 longer than 2, flagellum 3-articulate, article 1 longest. Upper lip and lower lip apically acute. Mandible with molar. Maxilla 1 with uniarticulate palp, outer plate styliform. Maxilla 2 with both plates styliform, outer plate longest. Maxilliped with elongate inner plate, outer plate slightly armed, palp present, consisting of slender article bearing terminal seta. Coxa 1 rounded to subacute ventrally. Coxae 2 and 3 dominant, elongate.

***Curidia magellanica* Coleman & Barnard, 1991c**

(Fig. 85, Map 40: open triangle)

References and synonymy. De Broyer *et al.* 2007: 170.

Diagnosis. Rostrum normal; laterocephalic margin with acute spine. Pleonite 1 with small apically subquadrate dorsodistal carina. Pleonite 2 with a small apically rounded dorsodistal carina. Pleonite 3 with a narrow apically rounded mid-dorsal carina. Epimeral plates 1-2 posteroventral corner tapering distally and acutely produced. Epimeral plate 3 posteromedian corner acute, posteroventral margin not excavate, ventral margin broadly rounded. Antenna 1 peduncular article 1 with posteroventral spine, spine longer than peduncular article 3; peduncular article 2 long, about 1.4 x as long as broad, with posteroventral spine, spine much longer than peduncular article 3; peduncular article 3 posterior margin not deeply telescoped into article 2. Antenna 2 longer than peduncular

article 1 of antenna 1; peduncular article 4 ventral spine present, spine longer than half length of article 5, reaching its distal margin. Mandible molar reduced, tritulating. Maxilla 1 palp reduced, 1-articulate, with a long apical seta. Maxilliped palp present, palp with 1 article, with a long apical seta. Pereon with sharply raised carina forming a dorsal keel. Pereonite 1 enlarged, longer than pereonite 2. Pereonite 7 with a small apically acute dorsodistal spine. Gnathopod 1 coxa curved anteriorly, ventrally subacute; carpus not elongate, less than 2 x propodus length. Gnathopod 2 coxa ventrally rounded, anteroproximal margin produced; carpus distal lobe shorter than half the propodus length. Coxa 3 ventrally obliquely truncated, anteroproximal margin strongly produced. Coxa 4 ventral margin angular, anteroproximal margin strongly produced. Coxa 5 anteriorly produced, tapering, apically rounded, posteroventral corner subquadrate. Coxa 6 posteroventral corner subquadrate. Coxa 7 subequal in length to coxa 6. Uropod 3 biramous. Telson medium length, 1.7 x as long as wide, apically acute.

Size. Female 2.4 mm.

Remarks. The genus *Curidia* differs very much from the two Antarctic odiid species in the family. It has different shaped coxae and gnathopods. *Curidia magellanica* is the only cold water species in the genus, all other species have been reported from tropical oceans. It has very long distoventral spines on the peduncle of antenna 1, very long distoventral spine on peduncular article 4 of antenna 2, reaching the distal end of article 5. Both *Antarctodius* species do not have any spines on the antennae.

Type locality. Magellan area: 52°56'S 75°00'W.

Distribution. Only known from type locality.

Depth range. 92-101 m.

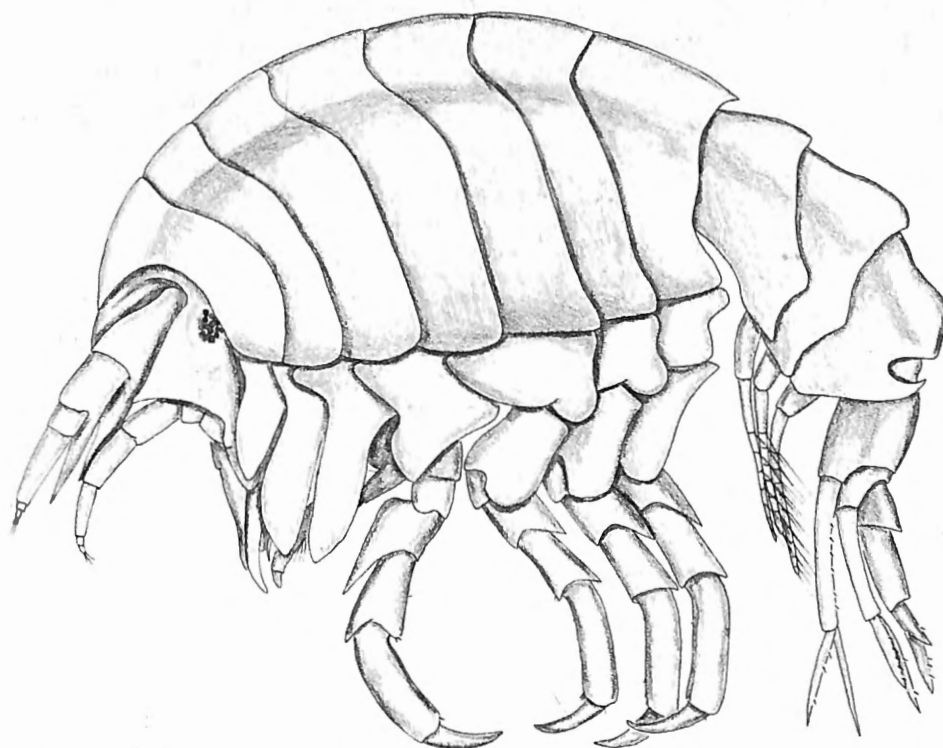


Fig. 85. *Curidia magellanica*. Left lateral view.

VICMUSIIDAE Just, 1990

Type species. *Vicmusia duplocoxa* Just, 1990.

Diagnosis (slightly emended after Just, 1990). Body robust, broad. Head markedly shortened, about twice as deep as dorsal length. Pereonite 1 greatly enlarged, overlapping head and pereonite 2. Primary flagellum of antennae multiarticulate; accessory flagellum a single vestigial setose article. Mouthparts conically produced, pointing forward, terminating in setose funnel. Upper lip notched. Mandibles elongate, with strong 3-articulate palp and condyle-like protuberance (possibly vestigial molar). Lower lip with large, separate inner lobes. Maxilla 1 with vestigial nonsetose inner plate, outer plate with 9 apical spines. Maxilla 2, inner plate slender with distoapical marginal setae and spines only, both inner and outer plates partly articulating with enlarged basis. Maxilliped with 3-articulate palp, plates well developed; palp and outer plates folded upwards creating a funnel partly enclosing apices of other mouthparts. Pereopod coxae 1, 3 and 4 deeper than broad, of subequal length, coxa 2 half the length of coxa 4 with posterior margin entire. Gnathopods 1 and 2 simple, similar. Pereopods 3-7 subsimilar, strong, crawling-clinging, bases 5-7 broadly expanded posteriorly. Uropods with full complement of slender, unarmed, lanceolate rami; outer ramus uropod 3 1-articulate. Telson short, entire, flat ventrally. Gills, on pereopods 2-7, simple sacks. Oostegites on pereopods 2-4 broad, on 5 shorter and more slender, all with simple marginal setae.

List of genera. *Acanthonotozomopsis* Watling & Holman, 1980 (= *Vicmusia* Just, 1990).

Acanthonotozomopsis Watling & Holman, 1980

Type-species. *Acanthonotozomopsis pushkini* (Bushueva, 1978).

Diagnosis (after Barnard & Karaman, 1991b). Body with weak posterior transverse segmental rugae, no sharp teeth. Antenna 1 peduncular article 2 shorter than 1. Mouthparts projecting conically. Upper lip incised, not very broad. Mandibular incisor broad, serrate; setal row long; molar absent. Lower lip inner lobes absent. Maxilla 1 palp 2-articulate, article 2 enlarged. Maxilla 2 inner plate without facial row of setae. Maxilliped inner plate shorter and much narrower than outer plate, latter elongate; palp article 2 broad but unproduced; palp article 4 obsolescent. Coxa 2 short; coxae 3-4 progressively longer; coxa 4 monocuspitate. Gnathopods scarcely diverse, of different sizes, carpus and propodus elongate, both gnathopods simple. Telson entire.

Acanthonotozomopsis pushkini (Bushueva, 1978)

(Fig. 86, Colour plate 4d, Map 41: rhomb)

References and synonymy. De Broyer *et al.* 2007: 228.

Diagnosis. Head with short rounded rostrum, slightly turned upwards; eyes very large, circular, ocular lobe weakly produced; anteroventral corner subacutely produced. Pereonite 1 as large as pereonite 7; all pereonites and pleonites with hump-like dorsal protrusions; pereonite 2 to urosomite 1 each with dorsolateral transverse rugae. Pleonites

1-3 with posteromarginal excavation close at the transverse rugae. Ventral margin of epimeral plates 1-3 rounded, without posteroventral process. Coxa 1 with weakly concave anterior margin, distally expanded, anteriorly produced, apex rounded, posterior margin convex. Coxa 2 about half the length of coxa 1, tapering distally, with rounded apex. Coxae 3-4 subtriangular with rounded apex; coxa 4 slightly longer than 3. Pereopod 5-7 coxae with rounded protrusion on lateral surface; bases expanded distally with posterodistal rounded lobe partly covering ischium, merus weakly drawn out posterodistally. Pereopod 7 basis subrectangular. Telson tapering distally, apically entire and truncate.

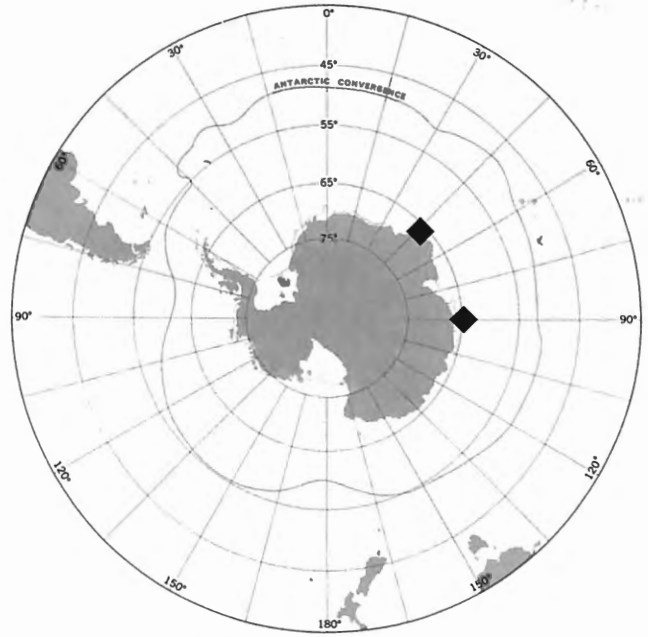
Size. Female 8.5 mm, male 12.5 mm.

Remarks. Unique morphology and easy to be determined. Just (1990) described the related and very similar species *Acanthonotozomopsis duplocoxa* from Australian bathyal waters.

Type locality. Davis Sea: Haswell Island.

Distribution. Davis Sea, Enderby Land.

Depth range. 24-45 m.



Map 41. *Acanthonotozomoides pushkini*: rhomb.

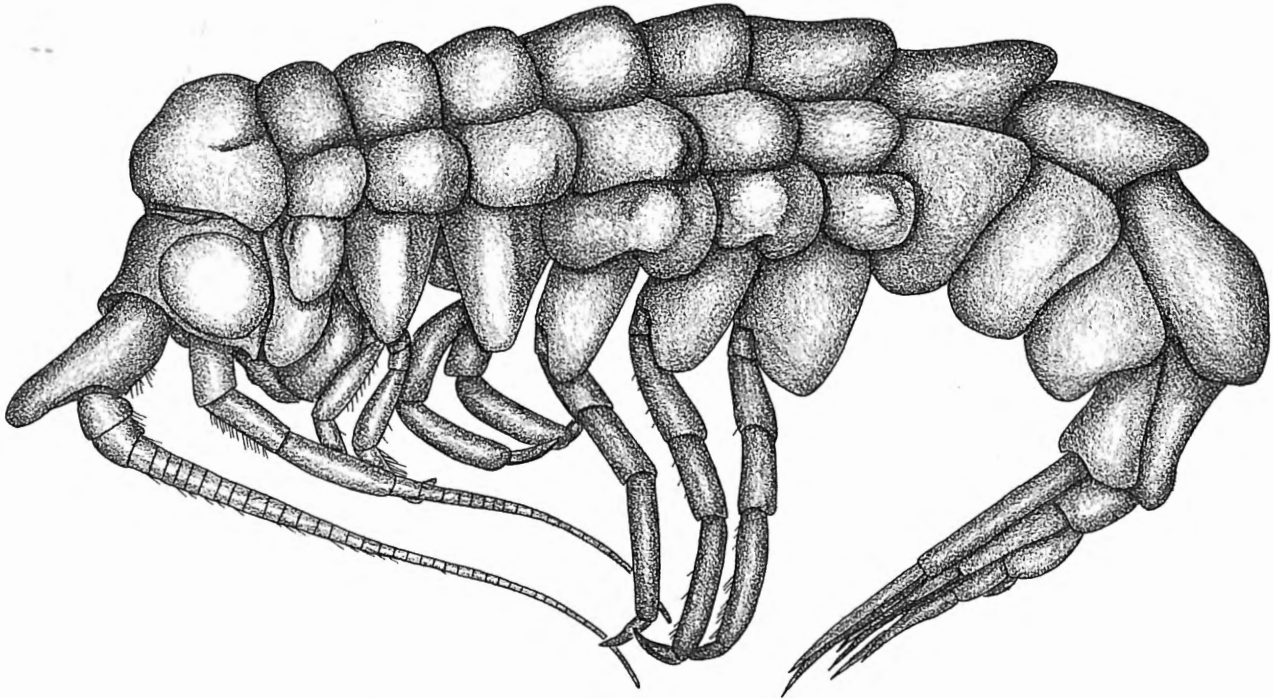


Fig. 86. *Acanthonotozomopsis pushkini*. Left lateral view. Redrawn from De Broyer (1983)

References

All references cited in this volume can be found in: De Broyer C., Lowry J.K., Jazdzewski K., Robert H., 2007. Catalogue of the Gammaridean and Corophiidean Amphipoda of the Southern Ocean with distribution and ecological data, In: De Broyer C. (Ed.), Census of Antarctic Marine Life: Synopsis of the Amphipoda of the Southern Ocean, Volume 1. Bulletin de l'Institut Royal des Sciences Naturelles de Belgique, Biologie 77 suppl. 1: 1-325.

Taxonomic index

<i>Acanthonotozomella</i>	13	<i>macronyx</i> , <i>Epimeriella</i>	57
<i>Acanthonotozomoides</i>	18	<i>macrops</i> , <i>Gnathiphimedia</i>	87
<i>Acanthonotozomopsis</i>	130	<i>magellanica</i> , <i>Curidia</i>	129
<i>acanthurus</i> , <i>Metepimeria</i>	61	<i>magellanica</i> , <i>Iphimedia</i>	94
<i>Actinacanthus</i>	30	<i>major</i> , <i>Parepimeria</i>	25
<i>acuticoxa</i> , <i>Iphimediella</i>	97	<i>mandibularis</i> , <i>Gnathiphimedia</i>	88
<i>alata</i> , <i>Acanthonotozomella</i>	14	<i>margueritei</i> , <i>Iphimediella</i>	103
<i>Amathillopsis</i>	21	<i>Maxilliphimedia</i>	112
<i>Anchiphimedia</i>	74	<i>Metepimeria</i>	61
<i>andresi</i> , <i>Diwka</i>	27	<i>microdentata</i> , <i>Iphimediella</i>	104
<i>annabellae</i> , <i>Epimeria</i>	35	<i>minor</i> , <i>Parepimeria</i>	26
<i>antarcticus</i> , <i>Antarctodius</i>	126	<i>monodi</i> , <i>Paranchiphimedia</i>	114
<i>Antarctodius</i>	126	<i>monodon</i> , <i>Epimeria</i>	44
<i>barnardi</i> , <i>Acanthonotozomella</i>	15	<i>multidentata</i> , <i>Iphimedia</i>	95
<i>barnardi</i> , <i>Echiniphimedia</i>	75	<i>nodosa</i> , <i>Pseudiphimediella</i>	123
<i>barnardi</i> , <i>Gnathiphimedia</i>	83	<i>Nodotergum</i>	113
<i>bicarinatum</i> , <i>Nodotergum</i>	113	<i>normani</i> , <i>Pariphimedia</i>	121
<i>bidentata</i> , <i>Parepimeria</i>	23	<i>oatesi</i> , <i>Acanthonotozomoides</i>	18
<i>bransfieldi</i> , <i>Iphimediella</i>	98	<i>oxicarinata</i> , <i>Epimeria</i>	46
<i>charlottae</i> , <i>Amathillopsis</i>	21	<i>oxygnathia</i> , <i>Parapanoploea</i>	117
<i>crenulata</i> , <i>Parepimeria</i>	24	<i>pacifica</i> , <i>Iphimedia</i>	96
<i>Curidia</i>	129	<i>paracuticoxa</i> , <i>Iphimediella</i>	105
<i>cyclogena</i> , <i>Iphimediella</i>	99	<i>Paranchiphimedia</i>	114
<i>Dikwa</i>	27	<i>Parapanoploea</i>	116
<i>dominici</i> , <i>Iphimediella</i>	100	<i>Pariphimedia</i>	119
<i>dorsalis</i> , <i>Anchiphimedia</i>	74	<i>Parepimeria</i>	22
<i>echinata</i> , <i>Echiniphimedia</i>	76	<i>Pseudiphimediella</i>	122
<i>Echiniphimedia</i>	75	<i>pulchra</i> , <i>Epimeria</i>	47
<i>echinophora</i> , <i>Uschakoviella</i>	62	<i>pulchridentata</i> , <i>Labriphimedia</i>	109
<i>Epimeria</i>	31	<i>puncticulata</i> , <i>Epimeria</i>	48
<i>Epimeriella</i>	56	<i>pushkini</i> , <i>Acanthonotozomopsis</i>	130
<i>extensa</i> , <i>Epimeria</i>	36	<i>rauscherti</i> , <i>Acanthonotozomella</i>	15
<i>fuchsi</i> , <i>Gnathiphimedia</i>	85	<i>rauscherti</i> , <i>Antarctodius</i>	127
<i>gabrielae</i> , <i>Echiniphimedia</i>	77	<i>recessa</i> , <i>Parapanoploea</i>	119
<i>georgei</i> , <i>Iphimediella</i>	101	<i>reoproi</i> , <i>Epimeria</i>	49
<i>georgiana</i> , <i>Epimeria</i>	37	<i>rigida</i> , <i>Iphimediella</i>	106
<i>glabra</i> , <i>Pseudiphimediella</i>	122	<i>rimicarinata</i> , <i>Epimeria</i>	51
<i>Gnathiphimedia</i>	83	<i>robusta</i> , <i>Epimeria</i>	52
<i>grandirostris</i> , <i>Epimeria</i>	38	<i>rubriques</i> , <i>Epimeria</i>	53
<i>heldi</i> , <i>Epimeria</i>	39	<i>ruffoi</i> , <i>Iphimediella</i>	107
<i>hodgsoni</i> , <i>Echiniphimedia</i>	79	<i>scabrosa</i> , <i>Epimeriella</i>	58
<i>imparidentata</i> , <i>Echiniphimedia</i>	80	<i>scotti</i> , <i>Echiniphimedia</i>	81
<i>imparilabia</i> , <i>Iphimedia</i>	92	<i>serrata</i> , <i>Iphimediella</i>	108
<i>incerta</i> , <i>Gnathiphimedia</i>	86	<i>sexdentata</i> , <i>Gnathiphimedia</i>	89
<i>inermis</i> , <i>Epimeria</i>	41	<i>similis</i> , <i>Epimeria</i>	54
<i>integracauda</i> , <i>Pariphimedia</i>	119	<i>Stegopanoploea</i>	124
<i>intermedia</i> , <i>Epimeria</i>	42	<i>sublitoralis</i> , <i>Acanthonotozomoides</i>	19
<i>Iphimedia</i>	92	<i>tricarinatus</i> , <i>Actinacanthus</i>	30
<i>Iphimediella</i>	97	<i>trispinosa</i> , <i>Acanthonotozomella</i>	17
<i>irregularis</i> , <i>Parepimeria</i>	24	<i>truncata</i> , <i>Epimeriella</i>	59
<i>Labriphimedia</i>	109	<i>urodentata</i> , <i>Gnathiphimedia</i>	90
<i>joubini</i> , <i>Stegopanoploea</i>	125	<i>Uschakoviella</i>	62
<i>longipes</i> , <i>Maxilliphimedia</i>	112	<i>vaderi</i> , <i>Epimeria</i>	55
<i>longirostris</i> , <i>Parapanoploea</i>	116	<i>vespuccii</i> , <i>Labriphimedia</i>	111
<i>macrocytidis</i> , <i>Iphimedia</i>	93	<i>waegelei</i> , <i>Echiniphimedia</i>	82
<i>macrodonta</i> , <i>Epimeria</i>	43	<i>walkeri</i> , <i>Epimeriella</i>	60
		<i>watlingi</i> , <i>Gnathiphimedia</i>	91

Colour plates

Plate 1: a. *Acanthonotozomoides oatesi* (© Martin Rauschert); b. *Parepimeria crenulata* (© Martin Rauschert); c. *Epimeria inermis* (© Martin Rauschert); d. *Epimeria macrodonta* (© Martin Rauschert); e. *Epimeria similis* (© Martin Rauschert); f. *Epimeria heldi* (© Christoph Held); g. *Epimeria robusta* (© Oliver Coleman); h. *Epimeria annabellae* (© Claude De Broyer).

Plate 2: a. *Epimeria rubriques* (© Martin Rauschert); b. *Epimeria grandirostris* (© Gauthier Chapelle); c. *Epimeria monodon* (© Claude De Broyer); d. *Epimeria puncticulata* (© Gauthier Chapelle); e. *Epimeria rimicarinata* (© Martin Rauschert); f. *Epimeria pulchra* (© Oliver Coleman); g. *Epimeria oxicarinata* (© Oliver Coleman); h. *Epimeria reoproi* (© Martin Rauschert).

Plate 3: a. *Epimeriella walkeri* (© Martin Rauschert); b. *Pariphimedia integricauda* (© Martin Rauschert); c. *Maxilliphimedia longipes* (© Martin Rauschert); d. *Iphimediella rigida* (© Martin Rauschert); e. *Echiniphimedia hodgsoni* (© Martin Rauschert); f. *Echiniphimedia hodgsoni* (arrow) sitting on a sponge host (© Oliver Coleman); g. *Anchiphimedia dorsalis* (© Martin Rauschert); h. *Gnathiphimedia incerta* (© Martin Rauschert).

Plate 4: a. *Gnathiphimedia fuchsi* (© Claude De Broyer); b. *Gnathiphimedia mandibularis* (© Gauthier Chapelle); c. *Gnathiphimedia sexdentata* (© Martin Rauschert); d. *Acanthonotozomopsis pushkini* (© Martin Rauschert).

